

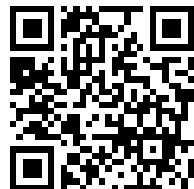


---

This is a reproduction of a library book that was digitized by Google as part of an ongoing effort to preserve the information in books and make it universally accessible.

Google<sup>TM</sup> books

<https://books.google.com>





LIBRARY OF THE  
UNIVERSITY OF VIRGINIA



ELIZABETH COCKE COLES  
COLLECTION











# FAIRBANKS VALVES

Globes, Gates, Checks, Cocks,

for

Water, Gas, Oil, Air, Steam

---

Dart Unions

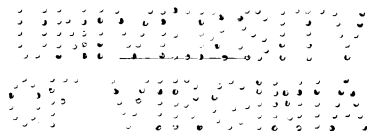
Indicator Posts      Floor Stands

Valve Seating Tools

---

Illustrated Catalogue and Price List

Number 700



**The Fairbanks Company**

Albany, N. Y.  
Baltimore, Md.  
Boston, Mass.  
Buffalo, N. Y.  
Hartford, Conn.  
New Orleans, La.

New York, N. Y.  
Paterson, N. J.  
Philadelphia, Pa.  
Pittsburgh, Pa.  
Providence, R. I.

Syracuse, N. Y.  
Washington, D. C.  
London, England  
Glasgow, Scotland  
Hamburg, Germany  
Paris, France

T 3  
432  
F 3  
**331552**  
NOV 100  
11.12.11

Keep in Alderson Library

Copyright, 1912, by  
The Fairbanks Company

ALDERSON  
LIBRARY

---

---

## Announcement

This catalogue supersedes all previous publications which relate to our Valves. While it illustrates and describes the types for which we have patterns, we are prepared to figure on special requirements.

Our Branch Houses are equipped to give efficient service in connection with demands which call for prompt attention.

## Notes of Importance

Our terms are net cash thirty days, unless otherwise arranged by agreement.

Prices are subject to change without notice.

Discount sheet will be furnished upon application.

Contracts are made subject to delays contingent upon strikes, accidents or other causes beyond our control.

Claims for corrections or deductions must be made within ten days after receipt of goods.

When applied to the use for which they are manufactured, we will furnish new valves or parts, as may be necessary, to replace any that may prove to be defective in material or workmanship.

No goods will be exchanged or accepted for credit on account of alleged defects or for any other reasons unless our consent is first obtained.

In connection with any claims on account of materials or workmanship alleged to be defective, the measure of the loss will be limited in our consideration to the value of the said goods, and no charge for labor, expenses or damages consequential upon such defects will be allowed.

Our responsibility, as shippers, ends with the delivery of goods at railway stations or wharfs and when proper shipping receipts have been issued to us.

A charge will be made to cover the cost when requirements call for packing goods which are not ordinarily boxed or crated by us.

In ordering, please refer to catalogue figure numbers.

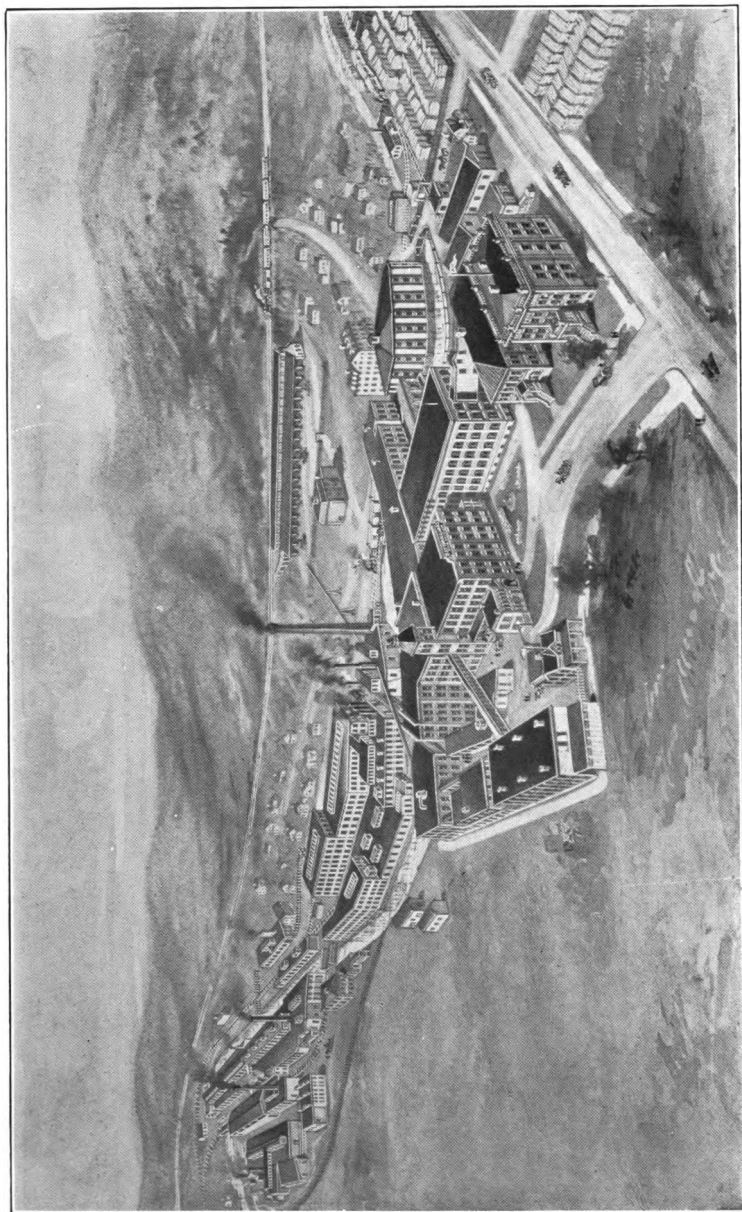
Full shipping instructions and complete specifications should accompany each order.

Any deviations from catalogue dimensions will incur an extra cost.

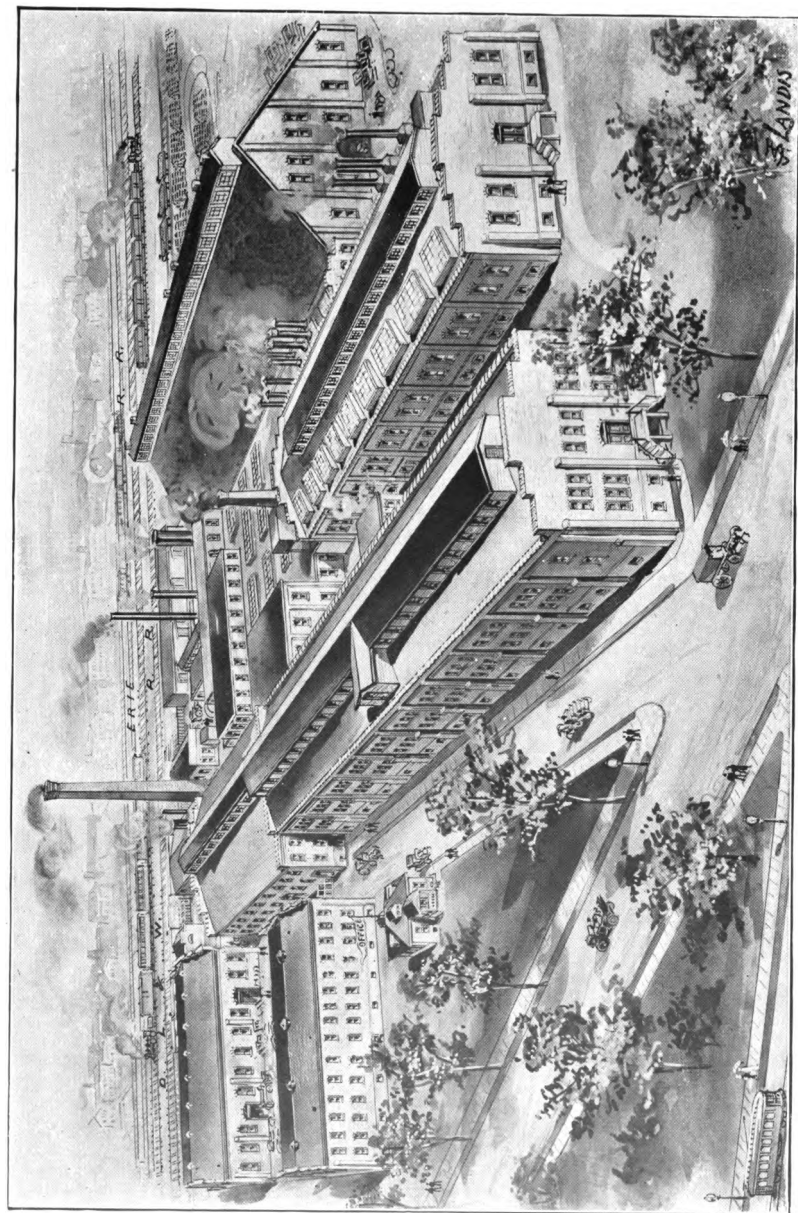
Correspondence relating to business, to secure proper attention, should in all cases be addressed to the Company and not to individuals.



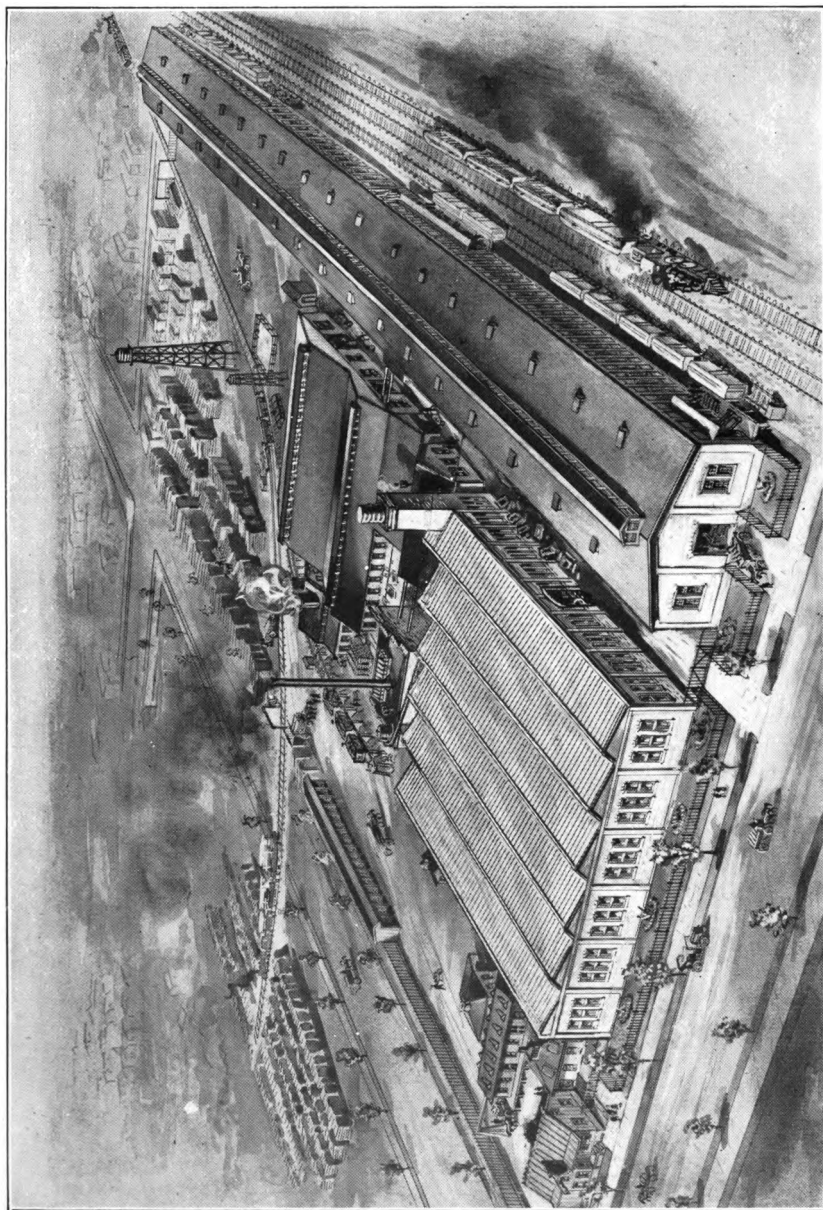




**THE FAIRBANKS COMPANY**  
**Factory No. 1**      **St. Johnsbury, Vt.**  
**SCALES and VALVES**



**THE FAIRBANKS COMPANY**  
Binghamton, N. Y.  
**Factory No. 2**  
**VALVES**



**THE FAIRBANKS COMPANY**

**Factory No. 3**

**Rome, Ga.**

**TRUCKS and WHEELBARROWS**



**The Fairbanks Company, New York, N. Y.**

**416-422 Broome Street**

**194-202 Lafayette Street**

**Broome and Lafayette Streets**

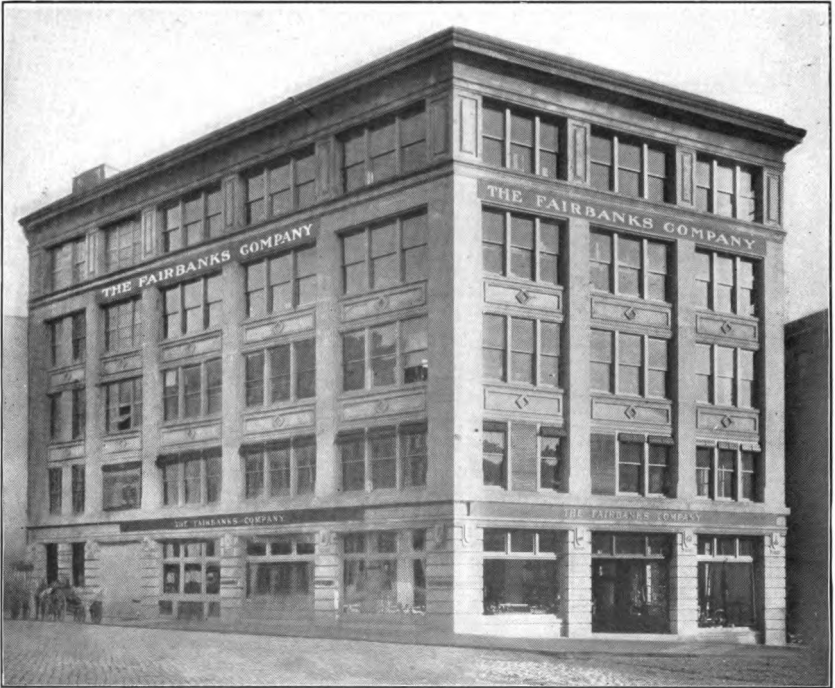


**The Fairbanks Company, New Orleans, La.**

**518-554 St. Joseph Street**

**900-926 Camp Street**

**Camp and St. Joseph Streets**



**The Fairbanks Company, Baltimore, Md.**

**Lombard Street**

**Light Street**

**Light and Lombard Streets**



**The Fairbanks Company, Philadelphia, Pa.**

**701-709 Arch Street**

**100-112 N. Seventh Street**

**Arch and Seventh Streets**





**The Fairbanks Company, Buffalo, N. Y.**

**145-149 East Seneca Street**



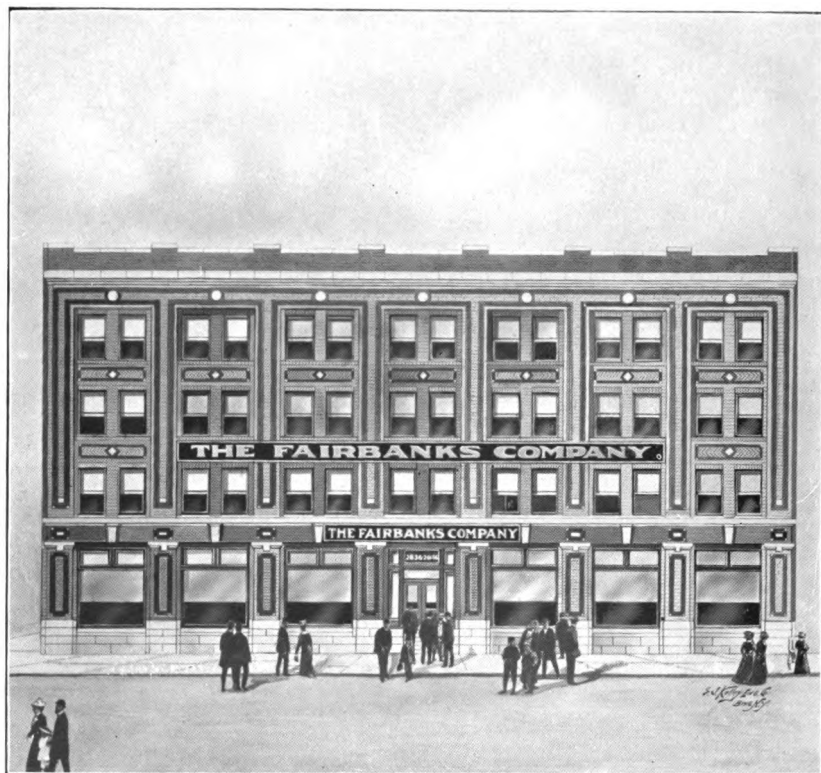


**The Fairbanks Company, Boston, Mass.**

**32-44 Pearl Street**

**216 Franklin Street**

**Pearl and Franklin Streets**



**The Fairbanks Company, Pittsburgh, Pa.**  
Liberty Avenue and Twenty-ninth Street



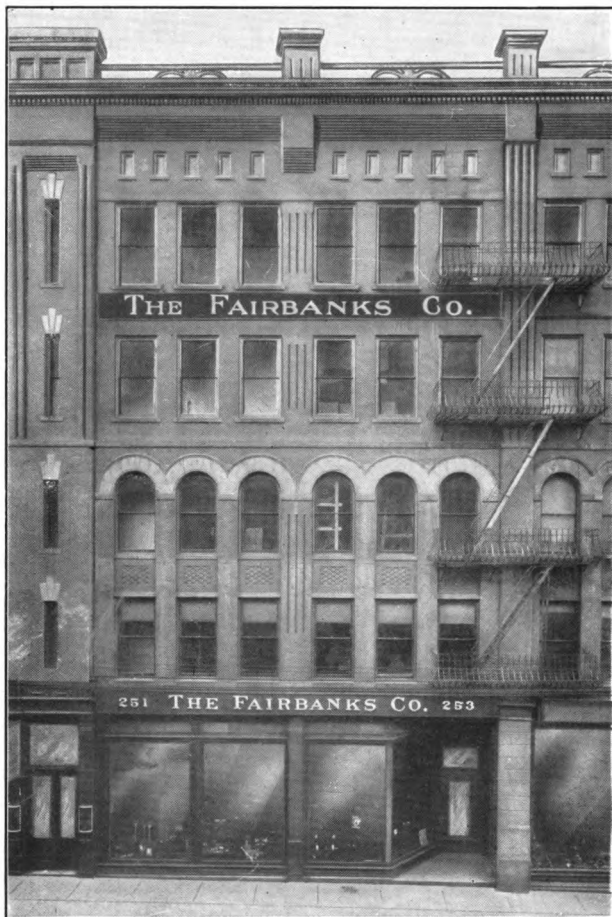
**The Fairbanks Company, Hartford, Conn.**

**306-316 Pearl Street**



**The Fairbanks Company, Albany, N. Y.**

**360-366 Broadway**



**The Fairbanks Company, Syracuse, N. Y.**

**251-253 West Fayette Street**



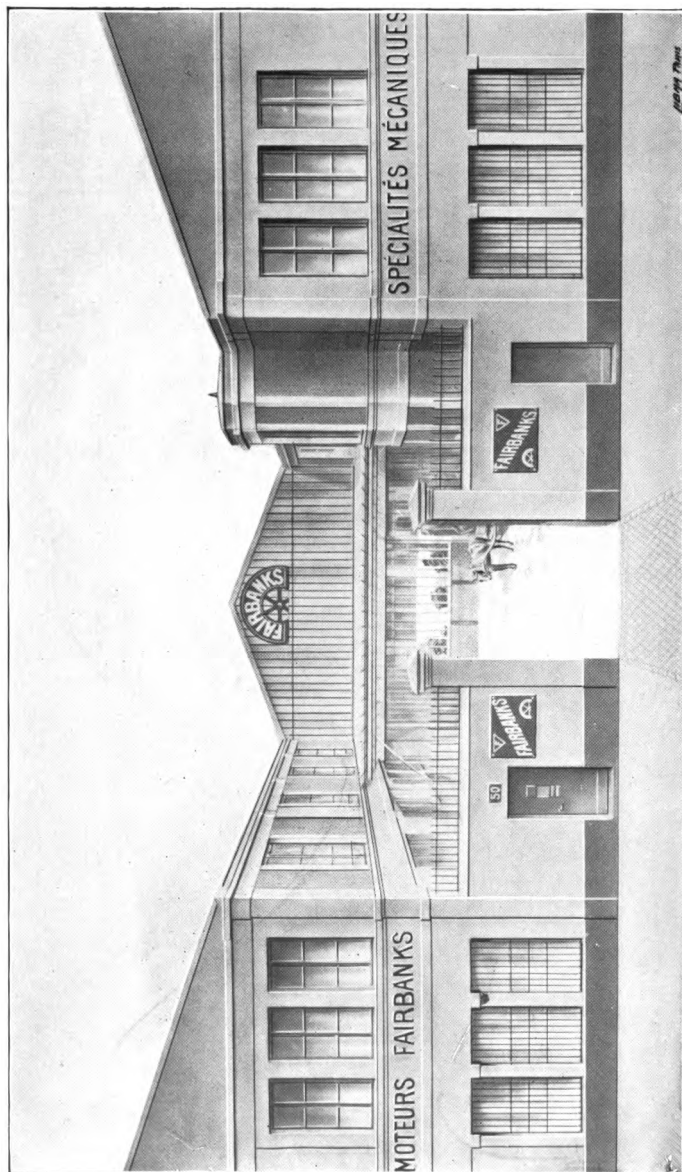
**The Fairbanks Company, Hamburg, Germany**

**Bei den Muhren, 46/48**



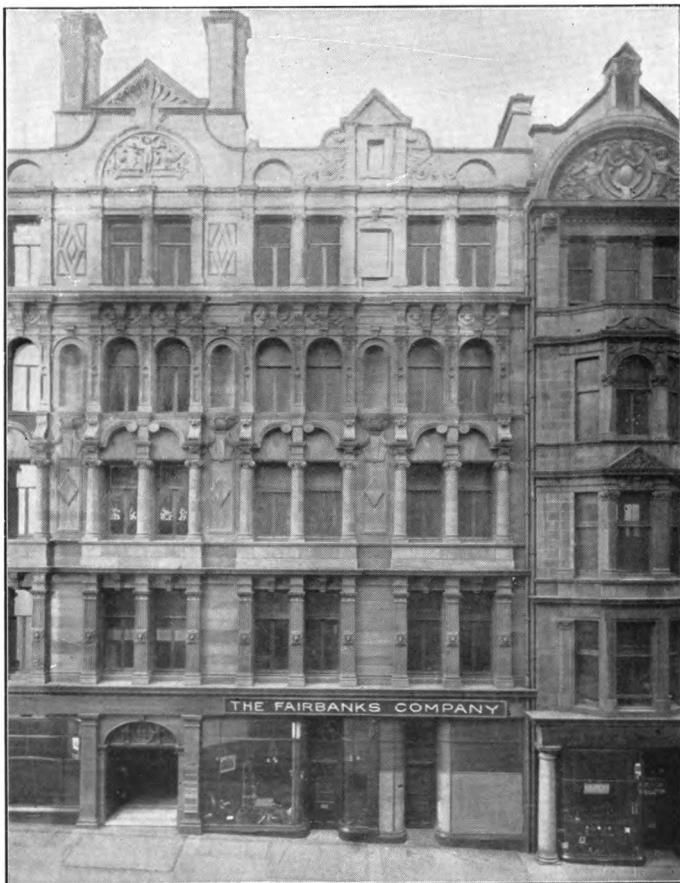
**The Fairbanks Company, London, England**

**15 Mallow Street, Old Street, E. C.**



**The Fairbanks Company, Paris, France**  
50, Rue Claude-Velle Faux





**The Fairbanks Company, Glasgow, Scotland**

**39 Robertson Street**



# Fairbanks Brass Globe, Angle and Radiator Valves

## Renewable Vulcabeston Ring Disc

The Vulcabeston Disc Ring, which is the principal feature of Genuine Fairbanks Renewable Asbestos Disc Globe and Angle Valves, is made from long fibre asbestos and rubber with the incorporation of a special binding ingredient, impervious to moisture. The materials are compressed into exact sizes and shapes by the use of plug molds, and the product is developed under a peculiar vulcanizing process to obtain the durable and efficient qualities which have never been successfully imitated.

Fairbanks Vulcabeston Disc Rings are unbreakable and tough, but they are of a consistency soft enough to cushion perfectly with the valve seat and also to receive the impression of any foreign substance which otherwise might injure or destroy the metal seat.

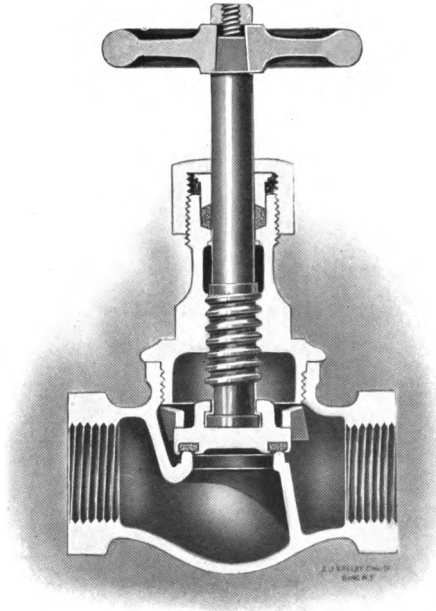
“Fairbanks Vulcabeston Disc Ring Holders” are marked with our name or our trade-mark. None others are genuine

---

---

# Fairbanks Brass Globe Valves

## Renewable Vulcabeston Ring Disc



These valves embody the best up-to-date renewable features.

Universal recognition is now given by engineers and experienced users to the superior results in service and the added durability in the life of a Globe Valve which is secured by the preservation of its seat at the sacrifice of a comparatively inexpensive renewable disc.

---

---

These valves have a RAISED ROUND SEAT upon which scale, grit or other sediment is not liable to lodge.

The seat is preserved from injury by the use of a comparatively soft ring in the renewable disc.

The ring is composed of asbestos fibre to which a water-proof vulcanizing material is added by a patented process, making a composition which will neither crack nor flake off. It is held securely in position by the metal edges of the disc holder which are spun over its inner and outer diameters.

The quickness of renewals is made possible by the ease with which the disc may be removed from the end of the spindle, without the manipulation of nuts, screws, pins, wires, or anything liable to become detached while the valve is in use.

The disc is guided centrally to its seat, without danger of binding, by splines cast in the body of the valve.

TO RENEW: Simply unscrew and remove the bonnet of the valve, slip the old disc from the end of spindle and substitute a new one. The whole operation requires but a few moments and no skill and DOES NOT NECESSITATE THE REMOVAL OF THE VALVE BODY FROM THE PIPE LINE.

The Stuffing Box is packed with a specially moulded asbestos ring, which is durable and cannot be blown or washed out. The packing ring is held in place by a follower gland, except in the  $\frac{1}{4}$ " and  $\frac{3}{8}$ " sizes.

Valves can be packed under pressure, when wide open.

We invite inspection and trial.

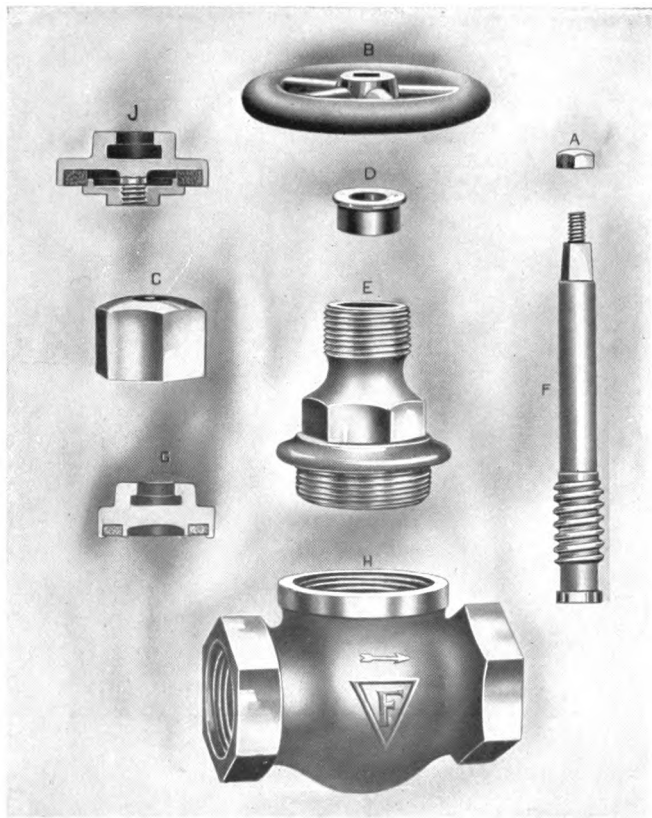
---

---

# Fairbanks Brass Globe Valves

## Renewable Vulcabeston Ring Disc

### PARTS



**A**—Wheel Stem Nut

**B**—Wheel

**C**—Packing Nut

**D**—Follower Gland

**E**—Bonnet

**F**—Spindle

**G**—Regular Disc (Fig. No. 019)

**H**—Body

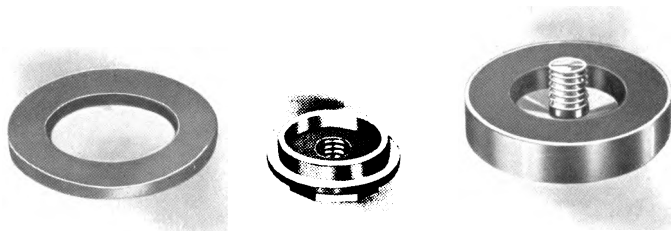
**J**—Special Disc (Fig. No. 022)

In ordering parts, specify them by reference both to the names and to the descriptive letters

See Page 5 for Description of Part "J."

# Fairbanks Special Brass Globe Valve Disc Holder

With Renewable Vulcabeston Ring



PART "J"—See Page 4

To meet special requirements we have designed the style of Disc illustrated above.

By unscrewing the holding plate, the old ring may be easily removed from the shell and a new vulcabeston ring or one of other material substituted.

We ordinarily furnish our well-known vulcabeston rings, but we can supply discs of this pattern with rings of copper, leather, fibre or of any material specified and designed for special service.

This holder features, in combination, the advantages of being a separate part complete in itself; the simple and efficient method employed for attaching it to or removing it from the end of the valve spindle, and the device which permits the interchangeability of disc rings.

## PRICE LIST

SIZE	INCHES	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Brass Disc Holder.....		.06	.08	.10	.14	.18	.28	.36	.50
Brass Disc Holder Nut.....		.01	.01	.02	.03	.03	.05	.07	.11
Vulcabeston Ring .....		.05	.06	.07	.09	.11	.13	.23	.26

---

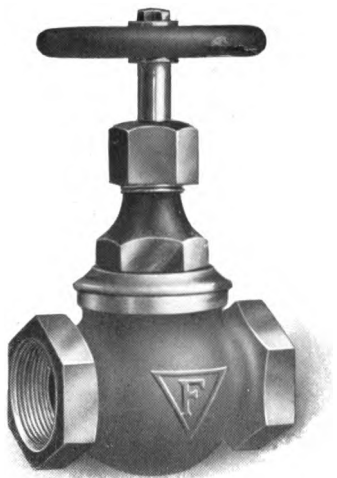
---

# Fairbanks Brass Globe and Angle Valves

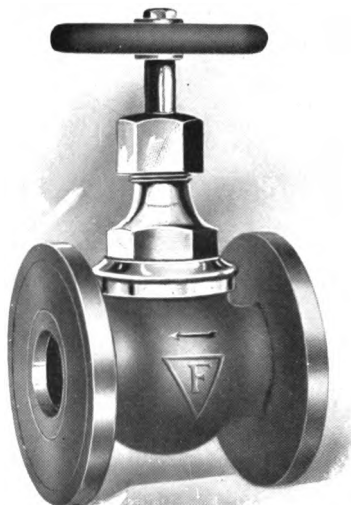
**Renewable Vulcabeston Ring Disc      Follower Gland**

**300 Pounds Hydraulic Test Pressure**

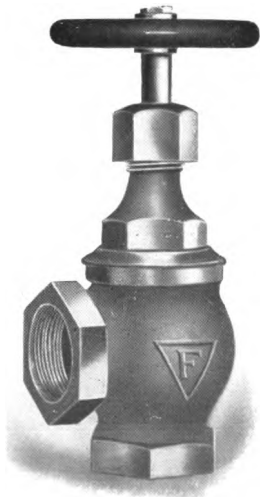
**150 Pounds Steam Working Pressure    175 Pounds Water Working Pressure**



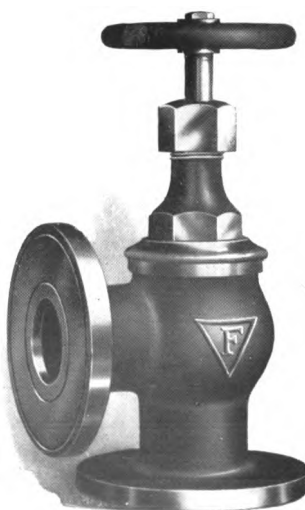
**Figure 01—(Vacancy)**



**Figure 02—(Vacant)**



**Figure 03—(Vacantly)**



**Figure 04—(Vacate)**

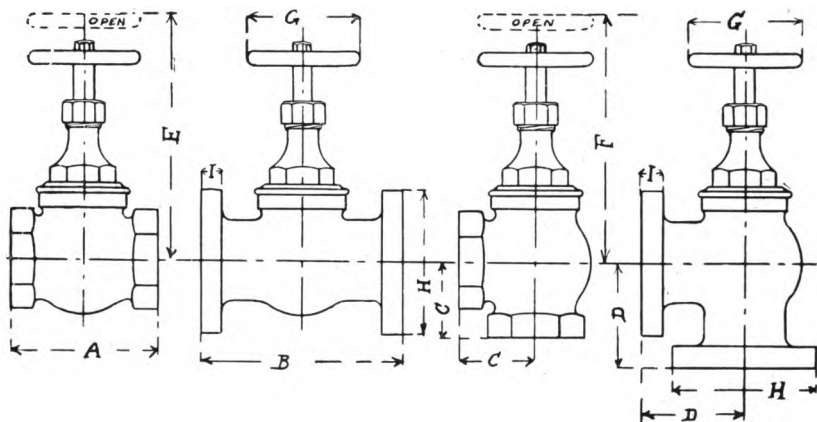
**For Price List see Page 7  
For Detail Dimensions see Page 7  
For Description see Pages 2 and 3**



# Fairbanks Brass Globe and Angle Valves

Renewable Vulcabeston Ring Disc

Follower Gland



Figures 01 and 02

Figures 03 and 04

## DETAIL DIMENSIONS

SIZE	INCHES	1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
A—Globe, End to End, Screw End . . . .	1 1/2	1 13/16	2	2 13/16	3 3/16	3 11/16	4 1/4	4 13/16	5 15/16	6 7/16	7 1/4	7 1/4
B—Globe, Face to Face, Flange End . . . .	3 1/4	1 5/16	1	1 7/16	1 5/8	1 11/16	2 1/16	2 3/8	2 13/16	3 1/4	3 7/8	3 7/8
C—Angle, Center to End, Screw End . . . .	3 1/4	1 5/16	1	1 7/16	1 5/8	1 11/16	2 1/16	2 3/8	2 13/16	3 1/4	3 7/8	3 7/8
D—Angle, Center to Face, Flange End . . . .	3 1/4	1 5/16	1	1 7/16	1 5/8	1 11/16	2 1/16	2 3/8	2 13/16	3 1/4	3 7/8	3 7/8
E—Globe, Center to Top of Wheel—Open . . . .	3 3/16	3 1/4	4 3/4	5 1/8	6	6 1/2	7 9/16	8 7/16	9 5/8	10 7/8	11 3/16	11 3/16
F—Angle, Center to Top of Wheel—Open . . . .	2 5/16	3	4 3/4	5 3/16	5 7/8	6 1/16	7 1/2	8 3/4	9 3/4	10 7/8	11 3/16	11 3/16
G—Diameter of Handwheel . . . . .	2	2	2 3/8	2 3/4	3 1/8	3 3/4	4 1/4	4 1/2	5 7/8	6 3/4	7 1/2	7 1/2
H—Diameter of Flanges . . . . .	2	2	2 3/8	2 3/4	3 1/8	3 3/4	4 1/4	4 1/2	5 7/8	6 3/4	7 1/2	7 1/2
I—Thickness of Flanges . . . . .	2	2	2 3/8	2 3/4	3 1/8	3 3/4	4 1/4	4 1/2	5 7/8	6 3/4	7 1/2	7 1/2
Globe, Number of Turns to Open . . . . .	2	3	3	2 1/2	2 1/2	3 1/2	3	3 1/2	4	6	7 1/2	7 1/2
Angle, Number of Turns to Open . . . . .	2 1/4	2 1/4	2 1/4	4 3/8	4 1/8	4 1/2	4 1/2	4 3/4	7 1/2	8 3/4	12	12

## PRICE LIST

SIZE	INCHES	1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
Figs. 01 and 03, Screw End . . . .	1.10	1.10	1.25	1.60	2.20	2.80	4.00	5.50	8.75	15.75	22.00	22.00
Figs. 02 and 04, Flange End . . . .	1.10	1.10	1.25	1.60	2.20	2.80	4.00	5.50	8.75	15.75	22.00	22.00
With Brass Wheel, Rough Body, } Finished Trimmings . . . . .	1.80	2.15	2.30	3.15	3.95	5.30	7.30	11.95	16.50	25.00	34.00	34.00

For Special Finishes, Prices on Application

---

---

# Fairbanks Heavy Brass Globe and Angle Valves

Renewable Bronze Disc

Follower Gland

400 Pounds Hydraulic Test Pressure

200 Pounds Steam Working Pressure

250 Pounds Water Working Pressure

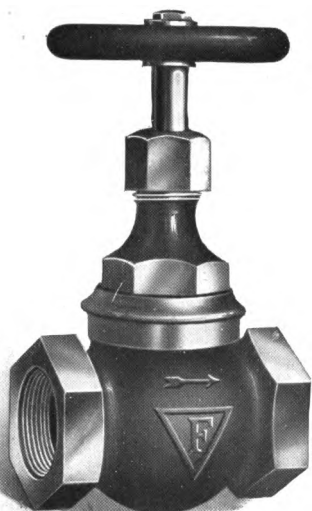


Figure 05—(Vacation)

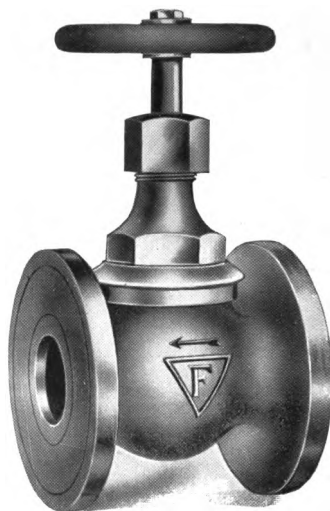


Figure 06—(Vachery)

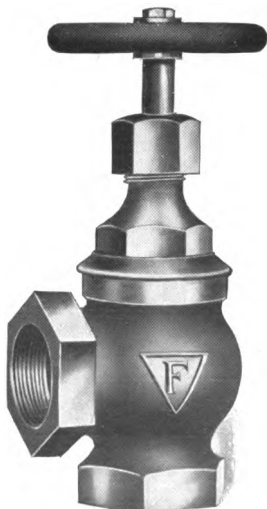


Figure 07—(Vade)

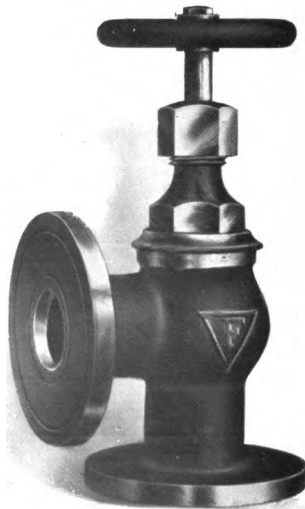


Figure 08—(Vagabond)

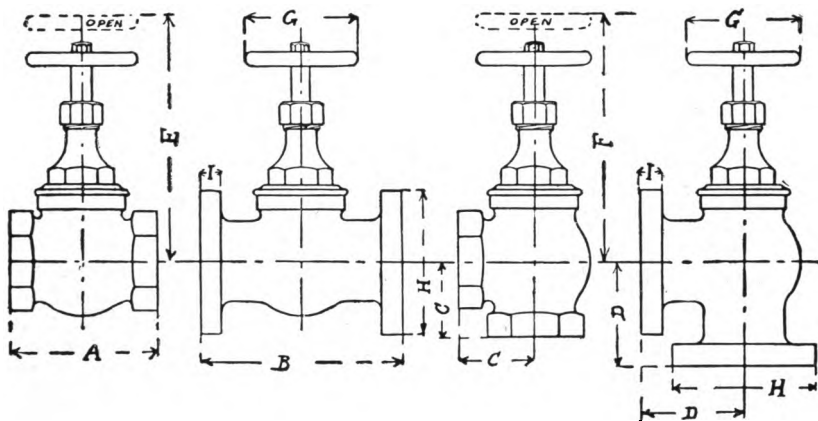
For Price List See Page 9

For Detail Dimensions See Page 9

# Fairbanks Heavy Brass Globe and Angle Valves

Renewable Bronze Disc

Follower Gland



Figures 05 and 06

Figures 07 and 08

## DETAIL DIMENSIONS

SIZE	INCHES	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
A—Globe, End to End, Screw End .....	$2\frac{13}{16}$	$3\frac{3}{8}$	$3\frac{3}{8}$	$4\frac{7}{16}$	$4\frac{13}{16}$	6	$6\frac{11}{16}$	$7\frac{5}{16}$	
B—Globe, Face to Face, Flange End .....	$2\frac{7}{8}$	$3\frac{1}{4}$	$3\frac{3}{4}$	$4\frac{5}{16}$	$4\frac{11}{16}$	6	$6\frac{7}{16}$	$7\frac{1}{16}$	
C—Angle, Center to End, Screw End .....	$1\frac{7}{16}$	$1\frac{11}{16}$	$1\frac{7}{8}$	$2\frac{1}{4}$	$2\frac{5}{8}$	$2\frac{11}{16}$	$3\frac{1}{4}$	$3\frac{5}{16}$	
D—Angle, Center to Face, Flange End .....	$2\frac{1}{4}$	$2\frac{9}{16}$	$2\frac{5}{8}$	$3\frac{1}{4}$	$3\frac{5}{8}$	4	$4\frac{1}{2}$	5	
E—Globe, Center to Top of Wheel—Open .....	$4\frac{5}{8}$	$5\frac{3}{16}$	$6\frac{1}{4}$	$6\frac{7}{8}$	$7\frac{1}{2}$	$9\frac{3}{16}$	$9\frac{5}{16}$	$11\frac{7}{8}$	
F—Angle, Center to Top of Wheel—Open .....	5	$5\frac{3}{4}$	$6\frac{3}{4}$	$7\frac{7}{16}$	$8\frac{1}{8}$	$9\frac{5}{8}$	11	$12\frac{1}{2}$	
G—Diameter of Handwheel .....	$2\frac{3}{8}$	$2\frac{13}{16}$	$3\frac{3}{16}$	$3\frac{11}{16}$	$4\frac{1}{4}$	$4\frac{1}{2}$	6	7	
H—Diameter of Flanges .....	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	6	7	$7\frac{1}{2}$	
I—Thickness of End Flanges .....	$\frac{5}{16}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{7}{16}$	$\frac{7}{16}$	$\frac{1}{2}$	$\frac{9}{16}$	$\frac{5}{8}$	
Globe, Number of Turns to Open .....	$2\frac{1}{2}$	$2\frac{1}{2}$	$3\frac{1}{2}$	3	$3\frac{1}{2}$	$4\frac{1}{2}$	6	$7\frac{1}{2}$	
Angle, Number of Turns to Open .....	$3\frac{1}{2}$	4	$5\frac{1}{2}$	5	$5\frac{3}{4}$	7	9	$11\frac{1}{2}$	

## PRICE LIST

SIZE	INCHES	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Figs. 05 and 07, Screw End .....		2.00	2.75	3.50	5.00	7.00	11.00	20.00	28.00
Figs. 06 and 08, Flange End .....		5.00	6.25	7.50	11.25	13.75	20.75	31.25	42.50

---

---

# Fairbanks Radiator Brass Globe and Angle Valves

Renewable Vulcabeston Ring Disc

Wood Wheel

300 Pounds Hydraulic Test Pressure

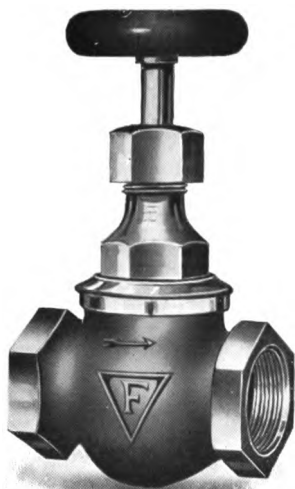


Figure 09—(Vagary)

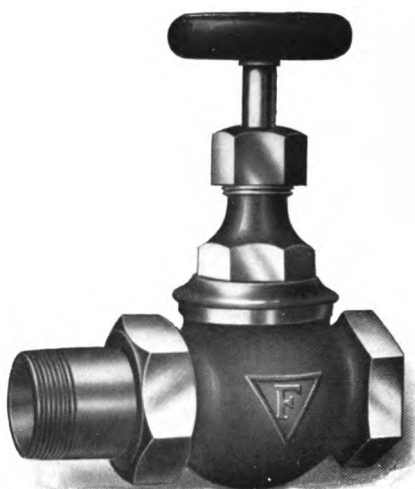


Figure 010—(Vagrancy)

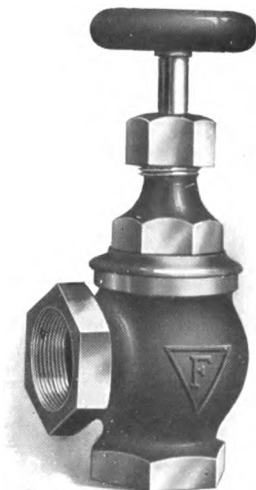


Figure 011—(Vagrant)

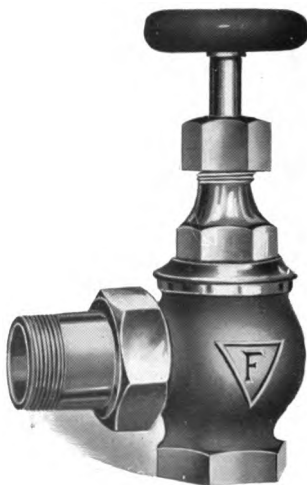


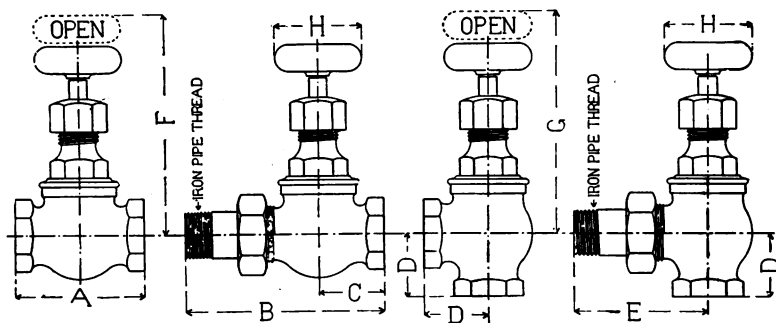
Figure 012—(Vague)

For Price List see Page 11  
For Detail Dimensions see Page 11  
For Description see Pages 2 and 3

# Fairbanks Radiator Brass Globe and Angle Valves

Renewable Vulcabeston Ring Disc

Wood Wheel



Figures 09 and 010

Figures 011 and 012

## DETAIL DIMENSIONS

SIZE	INCHES	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
A—Globe, End to End, Screw End .....		$2\frac{13}{16}$	$3\frac{3}{16}$	$3\frac{11}{16}$	$4\frac{1}{4}$	$4\frac{13}{16}$	$5\frac{15}{16}$
B—Globe, Extreme End to End, Screw and Union End .....		$4\frac{3}{16}$	$4\frac{15}{16}$	$5\frac{5}{8}$	$6\frac{3}{8}$	$6\frac{7}{8}$	$7\frac{13}{16}$
C—Globe, Center to End of Screw End, Screw and Union End .....		$1\frac{1}{8}$	$1\frac{1}{8}$	$1\frac{1}{8}$	$2\frac{1}{8}$	$2\frac{1}{8}$	$2\frac{1}{8}$
D—Angle, Center to End of Inlet or Outlet, Screw End .....		$1\frac{1}{16}$	$1\frac{5}{8}$	$1\frac{13}{16}$	$2\frac{3}{16}$	$2\frac{3}{8}$	$2\frac{13}{16}$
E—Angle, Center to End of Union, Screw and Union End .....		$2\frac{13}{16}$	$3\frac{5}{16}$	$3\frac{3}{4}$	$4\frac{1}{4}$	$4\frac{1}{2}$	$4\frac{7}{8}$
F—Globe, Center to Top of Wheel—Open .....		$4\frac{3}{4}$	$5\frac{5}{8}$	6	$6\frac{1}{2}$	$7\frac{1}{16}$	$8\frac{7}{16}$
G—Angle, Center to Top of Wheel—Open .....		$4\frac{3}{4}$	$5\frac{3}{16}$	$5\frac{7}{8}$	$6\frac{1}{16}$	$7\frac{1}{2}$	$8\frac{3}{4}$
H—Diameter of Handwheel .....		$2\frac{1}{2}$	$2\frac{3}{4}$	3	$3\frac{1}{4}$	$3\frac{1}{2}$	$3\frac{3}{4}$
Globe, Number of Turns to Open .....		$2\frac{1}{2}$	$2\frac{1}{2}$	$3\frac{1}{2}$	3	$3\frac{1}{2}$	4
Angle, Number of Turns to Open .....		4	4	5	5	7	8

## PRICE LIST

### Figures 09 and 011—Screw End

SIZE	INCHES	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Rough Body, Finished Trimmings .....	1.50	1.85	2.00	2.50	3.20	4.50	6.25	10.50	
Rough Body, Plated Trimmings .....	1.80	2.15	2.30	2.80	3.50	4.80	6.55	10.80	
Rough Body, Nickel Plated All Over .....	1.90	2.25	2.40	2.90	3.60	4.90	6.65	10.90	
Finished All Over .....	2.00	2.25	2.50	3.00	3.75	5.25	7.25	11.75	
Finished All Over and Nickel Plated .....	2.40	2.70	2.90	3.40	4.15	5.65	7.65	12.15	

### Figures 010 and 012—Male Union Outlet

SIZE	INCHES	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Rough Body, Finished Trimmings .....	2.75	3.50	4.30	5.85	7.75	12.60	
Rough Body, Plated Trimmings .....	3.05	3.80	4.60	6.15	8.05	12.90	
Rough Body, Nickel Plated All Over .....	3.15	3.90	4.70	6.25	8.15	13.00	
Finished All Over .....	3.20	4.00	4.80	6.40	8.75	13.85	
Finished All Over and Nickel Plated .....	3.60	4.40	5.20	6.80	9.15	14.25	

Above prices cover Wood Handle, Tee Handle, Square on Stem,  
or Lock Shield

# Fairbanks Radiator Brass Offset Globe Valves

Renewable Vulcabeston Ring Disc      Wood Wheel

300 Pounds Hydraulic Test Pressure

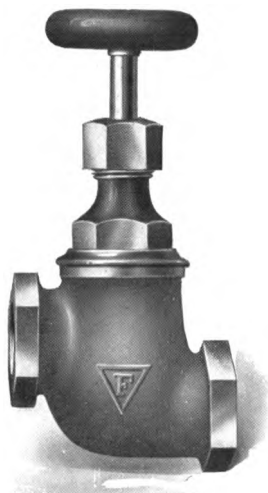


Figure 017—(Valentine)

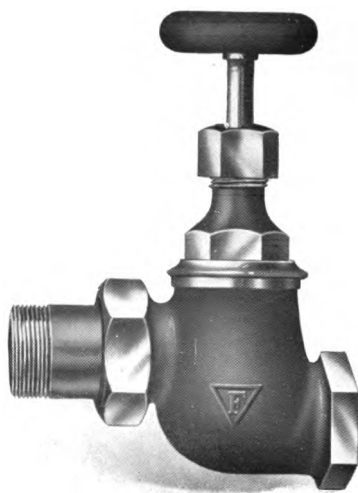


Figure 018—(Valerian)

## PRICE LIST

### Screw End—Figure 017

SIZE	INCHES	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Rough Body, Finished Trimmings.....		2.25	2.75	3.50	5.00	7.00	11.55
Rough Body, Nickel Plated Trimmings.....		2.55	3.05	3.80	5.30	7.30	11.85
Rough Body, Nickel Plated All Over.....		2.65	3.15	3.90	5.40	7.40	11.95
Finished All Over.....		2.75	3.25	4.25	5.75	8.00	12.95
Finished All Over and Nickel Plated.....		3.15	3.65	4.65	6.15	8.40	13.35

### Male Union Outlet—Figure 018

SIZE	INCHES	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Rough Body, Finished Trimmings.....		3.85	4.75	6.45	8.55	13.85
Rough Body, Nickel Plated Trimmings.....		4.15	5.05	6.85	8.85	14.15
Rough Body, Nickel Plated All Over.....		4.25	5.15	6.95	8.95	14.25
Finished All Over.....		4.40	5.30	7.05	9.65	15.25
Finished All Over and Nickel Plated.....		4.80	5.70	7.45	10.05	15.65

Above prices cover Wood Handle, Tee Handle, Square on Stem,  
or Lock Shield

For Detail Dimensions See Page 15

For Description See Pages 2 and 3

# Fairbanks Radiator Brass Corner Valves

## Offset Pattern

Renewable Vulcabeston Ring Disc      Wood Wheel  
300 Pounds Hydraulic Test Pressure

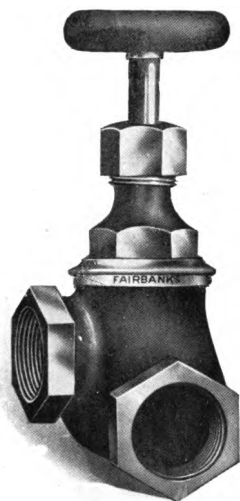


Figure 015—(Vair)

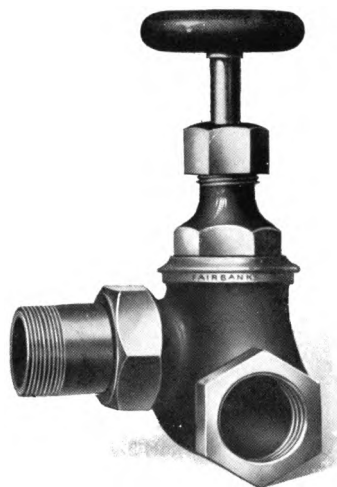


Figure 016—(Valance)

### PRICE LIST

#### Left Hand, Screw End—Figure 015

SIZE	INCHES	½	¾	1	1¼	1½	2
Rough Body, Finished Trimmings.....		2.25	2.75	3.50	5.00	7.00	11.55
Rough Body, Nickel Plated Trimmings.....		2.55	3.05	3.80	5.30	7.30	11.85
Rough Body, Nickel Plated All Over.....		2.65	3.15	3.90	5.40	7.40	11.95
Finished All Over.....		2.75	3.25	4.25	5.75	8.00	12.95
Finished All Over and Nickel Plated.....		3.15	3.65	4.65	6.15	8.40	13.35

#### Left Hand, Male Union Outlet—Figure 016

SIZE	INCHES	¾	1	1¼	1½	2
Rough Body, Finished Trimmings.....		3.85	4.75	6.45	8.55	13.85
Rough Body, Nickel Plated Trimmings.....		4.15	5.05	6.85	8.85	14.15
Rough Body, Nickel Plated All Over.....		4.25	5.15	6.95	8.95	14.25
Finished All Over.....		4.40	5.30	7.05	9.65	15.25
Finished All Over and Nickel Plated.....		4.80	5.70	7.45	10.05	15.65

Above prices cover Wood Handle, Tee Handle, Square on Stem,  
or Lock Shield

For Detail Dimensions see Page 15  
For Description see Pages 2 and 3

# Fairbanks Brass Globe and Angle Valves

## Vulcabeston Ring Disc Pattern

### PARTS

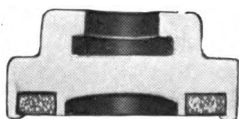
#### PRICE LIST

SIZE	INCHES	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Body.....		.56	.65	.75	1.00	1.25	2.00	2.60	4.50	8.75	14.00
Hub.....		.16	.22	.48	.68	.96	1.14	1.45	2.25	3.35	4.60
Spindle.....		.32	.11	.20	.26	.35	.46	.63	.92	1.45	1.60
Packing Nut.....		.08	.08	.15	.20	.27	.27	.38	.45	.73	.73
Follower.....				.04	.06	.08	.09	.13	.15	.20	.20
Handwheel.....		.04	.04	.04	.05	.07	.08	.13	.16	.40	.48
Wheel Nut, Per 100.....		.50	.50	.50	1.00	1.00	1.25	1.25	1.75	1.75	1.75
Trimnings Complete.....		.66	.77	1.28	1.71	2.30	2.75	3.70	5.25	8.30	10.80
Unions Complete.....				.50	.63	.90	1.25	1.85	3.50	.....	.....
Union Nuts.....				.25	.30	.40	.55	.85	1.65	.....	.....
Union Nipples.....				.25	.33	.50	.70	1.00	1.85	.....	.....



# Fairbanks Brass Globe and Angle Valves

## DISCS



Section of Figure 019

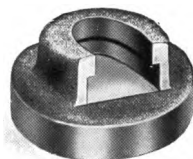


Figure 019—(Valet)

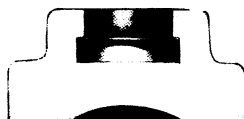


Figure 020—(Valiant)



Figure 021—(Valise)



Figure 022—(Valor)

## PRICE LIST

### Vulcabeston Ring, Brass Holder, Figure 019

SIZE	INCHES	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Fig. 019.....		.13	.14	.07	.09	.10	.12	.18	.25	.36	.48	.60

### Solid Brass, Figure 020

SIZE	INCHES	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Fig. 020.....		.20	.22	.10	.12	.15	.18	.27	.37	.54	.72	.90

### Brass Holder with Special Metal, Figure 021

SIZE	INCHES	....	....	....	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Fig. 021.....		....	....	....	.12	.16	.20	.30	.40	.60	1.10	1.65

### Brass Holder with Nut and Washer, Vulcabeston Ring, Figure 022

SIZE	INCHES	....	....	....	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Fig. 022.....		....	....	....	.12	.14	.17	.20	.28	.40	.65	.85

Prices of  $\frac{1}{8}$  and  $\frac{1}{4}$  inch include Spindles, as Disc Holder and Spindles are one piece.

We can furnish Figure 022 with any special ring, such as copper, rubber, fibre or other suitable material. Prices upon application.

# Hand Wheels and Hose Caps



Figure 023—(Valorous)

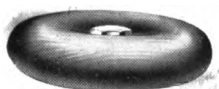


Figure 024—(Vamp)



Figure 025—(Vampire)

## PRICE LIST

### Fancy Brass Wheels—Figure 023

SIZE	INCHES	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Finished.....		.75	.75	.85	1.00	1.00	1.25	1.60	1.80	3.10	4.30
Nickel Plated.....		.85	.85	.95	1.10	1.10	1.35	1.70	1.90	3.30	4.50
Diameter of Wheel.....		$1\frac{15}{16}$	$1\frac{15}{16}$	$2\frac{5}{16}$	$2\frac{5}{8}$	3	$3\frac{3}{8}$	$3\frac{3}{4}$	$4\frac{1}{8}$	5	6

### Black Wood Wheels—Figure 024

SIZE	INCHES	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2		
Wood Wheel.....		.15	.15	.15	.20	.20	.25	.25	.30	.....	.....
Wood Wheel, with Top and Bottom Plates.....		.40	.40	.40	.50	.50	.60	.60	.70	.....	.....
Wood Wheel, with Nickel Plated Top and Bottom Plates.....		.50	.50	.50	.60	.60	.70	.70	.80	.....	.....

### Brass Cap and Chain—Figure 025

SIZE	INCHES				$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	
Finished.....		.....	.....	.....	.60	.75	1.00	1.20	1.70	2.50	.....
Nickel Plated.....		.....	.....	.....	.85	1.00	1.25	1.45	1.95	2.85	.....

# Handles, Keys and Lock Shields



Figure 026—(Vamplate)

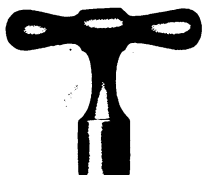


Figure 027—(Van)



Figure 028—(Vandal)

## PRICE LIST

### Brass Tee Handles—Figure 026

SIZE	INCHES	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Finished.....		.65	.65	.65	.75	.80	1.00
Nickel Plated.....		.75	.75	.75	.85	.90	1.10

### Brass Tee Handle Keys—Figure 027

SIZE	INCHES	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Finished.....		.75	.75	.75	1.00	1.00	1.25
Nickel Plated.....		.85	.85	.85	1.10	1.10	1.35

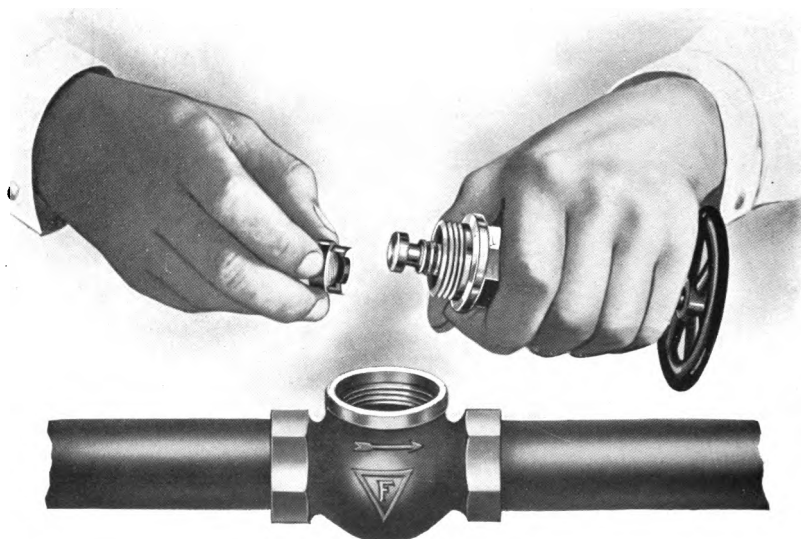
### Brass Lock Shields—Figure 028

SIZE	INCHES	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Finished.....		.75	.75	.75	1.00	1.00	1.25
Nickel Plated.....		.85	.85	.85	1.10	1.10	1.35

---

---

## Simple, Inexpensive Adjustment of the Fairbanks Renewable Disc



No wire nor pins to mislay. No loose parts to become detached when in use and to cause consequential troubles. No kit of tools required to make a renewal.

Appreciated by Engineers who value simplicity and efficiency of design and the economy of time.

**Fairbanks**  
**Regrinding Brass Globe and**  
**Angle Valves**

---

---

## Fairbanks Regrinding Brass Globe Angle and Cross Valves

We call attention to our valve of this type which can be repaired by regrinding the seating surfaces, without the labor and expense of disconnecting pipes.

These valves are made of the highest grade bronze metal.

The sectional view on the opposite page shows the design of the seat, the disc and the body.

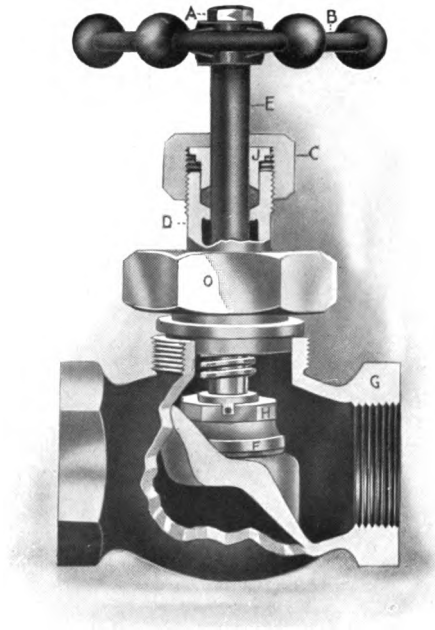
The use of outside body threads and a union ring makes a strong and rigid valve, and the design also insures protection against the corrosive effect which steam has upon inside body threads.

**TO REGRIND:** Unscrew the union ring and remove the trimmings from the body of the valve, insert a wire pin through the slot in the lock nut and the hole in the valve stem and, after placing upon the disc a small quantity of powdered sand or glass mixed with oil, replace the trimmings. Leave the union ring unscrewed so that the hub may rotate in the body of the valve and act as a guide for the stem during the process of regrinding.

---

---

## Fairbanks Regrinding Brass Valves



A-Wheel Stem Nut  
B-Wheel  
C-Packing Nut  
D-Hub  
E-Spindle

F-Disc  
G-Body  
H-Disc Lock Nut  
J-Follower Gland  
O-Hub Lock Nut

In ordering parts, specify them by reference both to the names  
and to the descriptive letters.

# Fairbanks Regrinding Brass Globe and Angle Valves

## Heavy Pattern

For Working Pressures up to 200 Pounds

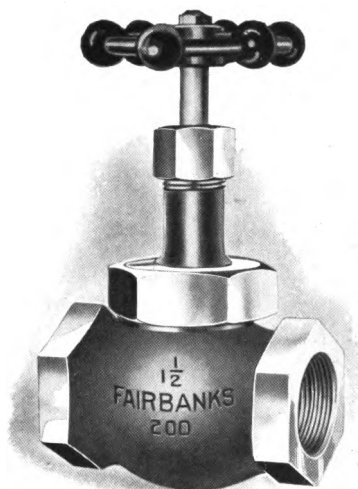


Figure 029—Screw End (Vandyke)  
Figure 030—Flange End (Vanish)



Figure 031—Screw End (Vanity)  
Figure 032—Flange End (Vapid)

### PRICE LIST

SIZE	INCHES	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Globe Valves, Screw End, Fig. 029		.70	.85	1.15	1.45	2.00	2.80	3.90	6.20	12.00	16.50
Angle Valves, Screw End, Fig. 031		.70	.85	1.15	1.45	2.00	2.80	3.90	6.20	12.00	16.50
Globe Valves, Flange End, Fig. 030		....	2.20	3.40	4.70	5.80	8.00	11.00	14.50	21.00	29.00
Angle Valves, Flange End, Fig. 032		....	2.20	3.40	4.70	5.80	8.00	11.00	14.50	21.00	29.00

Valves made to meet the requirements of the United States  
Navy Department carry special prices

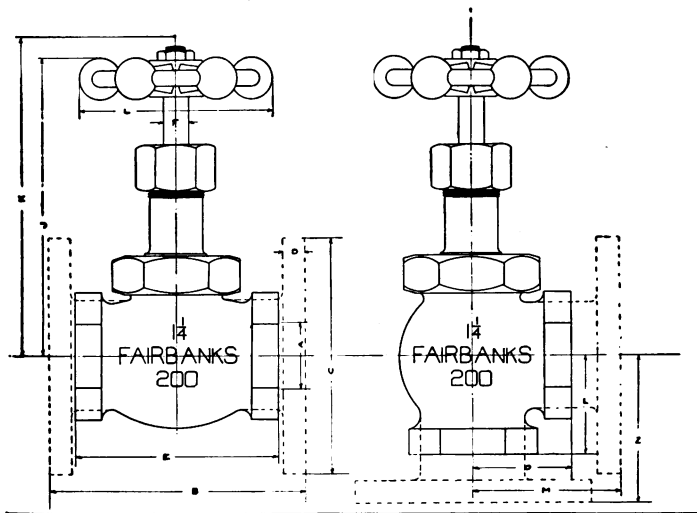
For Description see Page 22  
For Dimensions see Page 25



# Fairbanks Regrinding Brass Globe and Angle Valves

## Heavy Pattern

For Working Pressures up to 200 Pounds



Figures 029 and 030

Figures 031 and 032

### DETAIL DIMENSIONS

SIZE	INCHES	A	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
Face to Face, Flange End	B	...	27/8	35/8	43/16	45/8	47/8	57/8	67/8	713/16	87/16	
Diameter of Flanges	C	...	2 1/2	3	3 1/2	4	4 1/2	5	6	7	7 1/2	
Thickness of Flanges	D	...	3/2	1 1/2	1 3/4	2	2 1/4	2 1/2	3	3 1/2	4	
End to End, Screw End	E	2 1/2	2 1/8	2 7/16	2 7/8	3 1/4	3 3/4	4 1/8	4 1/2	5 1/4	6 1/8	
Diameter of Spindle	F	5/16	5/16	3/8	1/2	5/8	3/4	7/8	1	1 1/8	1 1/4	
Center to Top of Handwheel, Closed	J	3 11/16	3 11/16	4 1/16	4 1/2	5 5/16	5 7/8	6 3/8	7 1/2	8 1/4	8 13/16	
Center to Top of Handwheel, Open	K	4	4	4 7/16	4 7/8	5 3/4	6 5/16	6 5/16	8 5/16	9 3/16	9 13/16	
Diameter of Handwheel	L	2	2	2 7/16	2 15/16	3 3/8	3 13/16	4	4 3/4	5 1/2	6	
Center to End, Angle, Flange End	M	...	1 23/32	1 31/32	2 1/4	2 17/32	2 13/16	3 3/8	3 3/8	4 3/16	4 11/16	
Center to Bottom, Angle, Flange End	N	...	1 3/32	1 3/16	2 1/4	2 3/8	2 13/16	3 3/8	3 3/8	4 3/16	4 11/16	
Center to End, Angle, Screw End	O	1	1	1 3/16	1 3/8	1 5/8	1 7/8	2 1/8	2 9/16	3 3/16	3 3/4	
Center to Bottom, Angle, Screw End	P	1	1	1 3/16	1 3/8	1 5/8	1 7/8	2 1/8	2 9/16	3 3/16	3 3/4	

# Fairbanks Regrinding Brass Globe and Angle Valves

Extra Heavy Pattern

For Working Pressures up to 300 Pounds

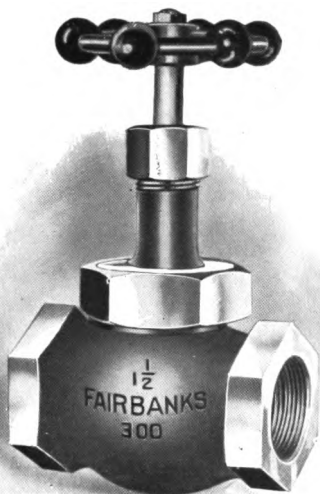


Figure 033—Screw End (Vapor)  
Figure 034—Flange End (Vaporate)



Figure 035—Screw End (Vaporish)  
Figure 036—Flange End (Vaporize)

## PRICE LIST

SIZE	INCHES	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Globe Valves,											
Screw End, Fig. 033	.90	1.10	1.50	2.30	3.60	5.10	7.10	10.90	19.50	29.00	
Angle Valves,											
Screw End, Fig. 035	.90	1.10	1.50	2.30	3.60	5.10	7.10	10.90	19.50	29.00	
Globe Valves,											
Flange End, Fig. 034	....	2.50	4.10	5.80	7.60	11.00	14.00	20.00	32.00	44.00	
Angle Valves,											
Flange End, Fig. 036	....	2.50	4.10	5.80	7.60	11.00	14.00	20.00	32.00	44.00	

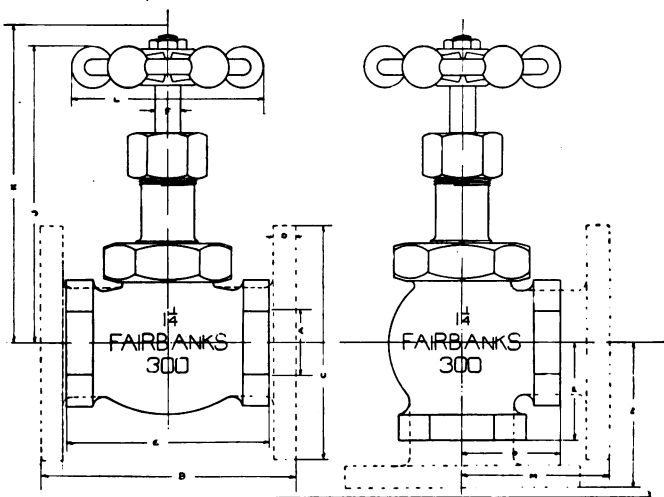
Valves made to meet the requirements of the United States  
Navy Department carry special prices

For Description see Page 22  
For Dimensions see Page 27

# Fairbanks Regrinding Brass Globe and Angle Valves

## Extra Heavy Pattern

For Working Pressures up to 300 Pounds



Figures 033 and 034

Figures 035 and 036

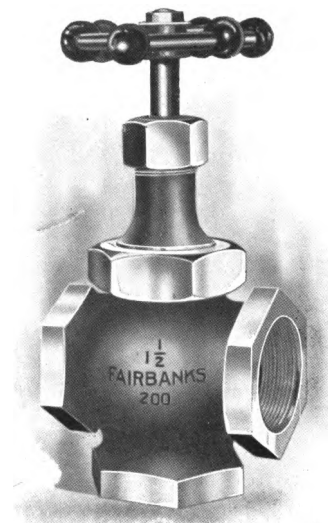
### DETAIL DIMENSIONS

SIZE	INCHES	A	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Face to Face, Flange End .....	B	....	$3\frac{1}{4}$	$3\frac{7}{8}$	$4\frac{1}{2}$	$4\frac{3}{4}$	$5\frac{1}{4}$	$6\frac{3}{8}$	$7\frac{3}{8}$	$8\frac{9}{16}$	$9\frac{3}{8}$	$9\frac{3}{8}$
Diameter of Flanges .....	C	....	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	6	7	$7\frac{1}{2}$	$7\frac{1}{2}$
Thickness of Flanges .....	D	....	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$
End to End, Screw End .....	E	$2\frac{1}{4}$	$2\frac{7}{16}$	$2\frac{3}{4}$	$3\frac{3}{8}$	$3\frac{3}{4}$	$4\frac{3}{8}$	$4\frac{7}{8}$	$5\frac{7}{8}$	$7\frac{1}{16}$	$7\frac{7}{8}$	$7\frac{7}{8}$
Diameter of Spindle .....	F	....	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$
Center to Top of Handwheel, Closed .....	J	$3\frac{7}{8}$	$3\frac{7}{8}$	$4\frac{5}{16}$	$5\frac{1}{16}$	$5\frac{13}{16}$	$6\frac{1}{2}$	$7\frac{3}{16}$	$8\frac{5}{16}$	$9\frac{5}{16}$	$10\frac{1}{16}$	$10\frac{1}{16}$
Center to Top of Handwheel, Open .....	K	$4\frac{5}{16}$	$4\frac{5}{16}$	$4\frac{11}{16}$	$5\frac{1}{16}$	$6\frac{3}{8}$	$6\frac{5}{16}$	$7\frac{3}{4}$	$9\frac{1}{8}$	$10\frac{1}{4}$	$11\frac{1}{16}$	$11\frac{1}{16}$
Diameter of Handwheel .....	L	2	2	$2\frac{7}{16}$	$2\frac{15}{16}$	$3\frac{3}{8}$	$3\frac{13}{16}$	4	$4\frac{3}{4}$	$5\frac{1}{2}$	6	6
Center to End, Angle, Flange End .....	M	....	$1\frac{3}{16}$	$2\frac{1}{16}$	$2\frac{5}{16}$	$2\frac{5}{8}$	$2\frac{9}{16}$	$3\frac{3}{16}$	$3\frac{3}{4}$	$4\frac{5}{16}$	$4\frac{11}{16}$	$4\frac{11}{16}$
Center to Bottom, Angle, Flange End .....	N	....	$1\frac{3}{16}$	$2\frac{1}{16}$	$2\frac{5}{16}$	$2\frac{5}{8}$	$2\frac{9}{16}$	$3\frac{3}{16}$	$3\frac{3}{4}$	$4\frac{5}{16}$	$4\frac{11}{16}$	$4\frac{11}{16}$
Center to End, Angle, Screw End .....	O	1	$1\frac{3}{16}$	$1\frac{9}{16}$	$1\frac{1}{16}$	$1\frac{5}{8}$	$2\frac{1}{8}$	$2\frac{3}{8}$	$2\frac{3}{4}$	$3\frac{1}{16}$	$4\frac{1}{8}$	$4\frac{1}{8}$
Center to Bottom, Angle, Screw End .....	P	1	$1\frac{3}{16}$	$1\frac{9}{16}$	$1\frac{1}{16}$	$1\frac{5}{8}$	$2\frac{1}{8}$	$2\frac{3}{8}$	$2\frac{3}{4}$	$3\frac{1}{16}$	$4\frac{1}{8}$	$4\frac{1}{8}$

# Fairbanks Regrinding Brass Cross Valves

Heavy and Extra Heavy Patterns

For 200 and 300 Pounds Working Pressures



## HEAVY

Figure 037—Screw End (Vaporose)

Figure 038—Flange End (Vapory)

## EXTRA HEAVY

Figure 039—Screw End (Vaquero)

Figure 040—Flange End (Variable)

## PRICE LIST

Figure 037		200 Pounds Pressure							Figure 038	
SIZE	INCHES	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Fig. 037, Screw End.....		1.00	1.50	2.00	2.70	3.50	5.10	8.00	16.00	24.00
Fig. 038, Flange End.....		3.20	5.10	7.00	8.40	12.00	15.00	20.50	29.00	40.00
Face to Face, Flange End.....		$2\frac{7}{8}$	$3\frac{5}{8}$	$4\frac{3}{16}$	$4\frac{5}{8}$	$4\frac{7}{8}$	$5\frac{7}{8}$	$6\frac{7}{8}$	$7\frac{3}{16}$	$8\frac{7}{16}$
Center to Bottom, Flange End.....		$1\frac{1}{2}$	$1\frac{3}{4}$	$2\frac{1}{4}$	$2\frac{3}{4}$	$2\frac{13}{16}$	$2\frac{3}{4}$	$3\frac{5}{8}$	$4\frac{3}{16}$	$4\frac{1}{2}$
End to End, Screw End.....		$2\frac{1}{8}$	$2\frac{7}{16}$	$2\frac{7}{8}$	$3\frac{1}{4}$	$3\frac{7}{8}$	$4\frac{5}{16}$	$5\frac{1}{4}$	$6\frac{7}{16}$	$7\frac{3}{16}$
Center to Bottom, Screw End.....		1	$1\frac{3}{16}$	$1\frac{3}{8}$	$1\frac{7}{8}$	$1\frac{7}{8}$	$2\frac{7}{8}$	$2\frac{9}{16}$	$3\frac{5}{16}$	$3\frac{3}{4}$

Figure 039		300 Pounds Pressure							Figure 040	
SIZE	INCHES	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Fig. 039, Screw End.....		1.30	1.90	2.90	4.50	6.30	8.60	13.10	23.40	34.50
Fig. 040, Flange End.....		3.50	5.90	8.20	10.50	14.50	19.00	27.00	43.00	57.00
Face to Face, Flange End.....		$3\frac{1}{4}$	$3\frac{7}{8}$	$4\frac{1}{2}$	$4\frac{3}{4}$	$5\frac{1}{4}$	$6\frac{3}{8}$	$7\frac{3}{8}$	$8\frac{7}{16}$	$9\frac{3}{8}$
Center to Bottom, Flange End.....		$1\frac{2}{3}$	$2\frac{1}{3}$	$2\frac{5}{16}$	$2\frac{5}{8}$	$2\frac{23}{32}$	$3\frac{3}{16}$	$3\frac{3}{4}$	$4\frac{5}{16}$	$4\frac{11}{16}$
End to End, Screw End.....		$2\frac{7}{16}$	$2\frac{23}{32}$	$3\frac{7}{32}$	$3\frac{3}{4}$	$4\frac{3}{32}$	$4\frac{7}{8}$	$5\frac{7}{8}$	$7\frac{1}{16}$	$7\frac{7}{8}$
Center to Bottom, Screw End.....		$1\frac{3}{16}$	$1\frac{9}{32}$	$1\frac{9}{16}$	$1\frac{13}{16}$	$2\frac{3}{32}$	$2\frac{3}{8}$	$2\frac{21}{32}$	$3\frac{11}{16}$	$4\frac{1}{8}$

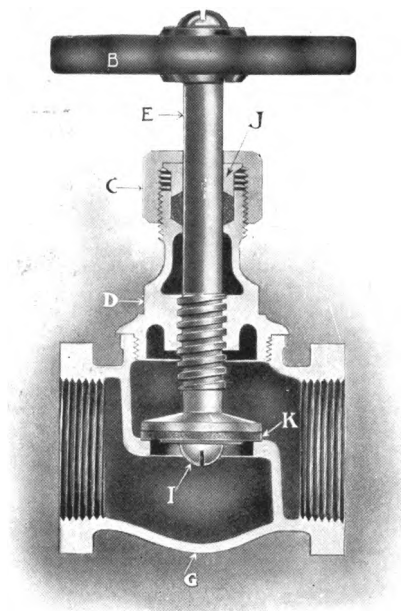
**Fairbanks “Standard”  
Brass Globe, Angle and  
Radiator Valves**

---

---

# Fairbanks XL Standard Brass Globe and Angle Valves

With Leather Disc      Follower Gland



B-Handwheel  
C-Packing Nut  
D-Bonnet or Hub  
E-Spindle

I-Disc Screw  
K-Disc  
G-Body  
J-Follower

In ordering parts, specify them by reference both to the names and to the descriptive letters.

These valves embody superior features of quality and design in advance of any other Standard valve now on the market.

Engineers will appreciate the advantage of having a follower gland in the packing nut.

The valves are made of high-grade steam bronze, are well proportioned, accurately machined and of good weight.

Every valve is subjected to careful inspection and to hydraulic test.

We do not recommend them for more than 125 pounds water working pressure.

# Fairbanks XL Standard Brass Globe and Angle Valves

With Leather Disc

Follower Gland

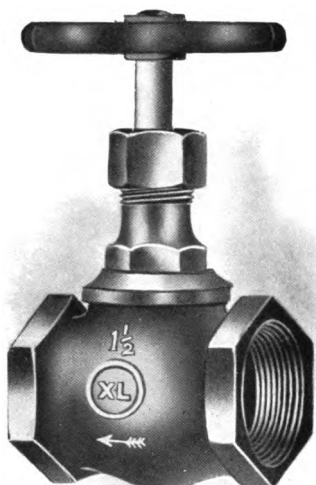


Figure 043—(Variform)

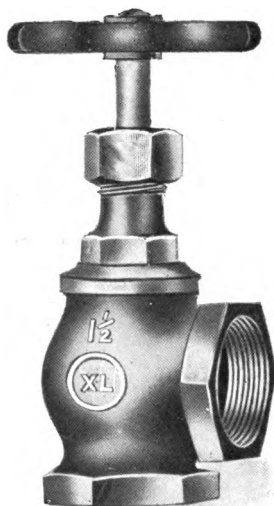


Figure 044—(Varlet)

## PRICE LIST

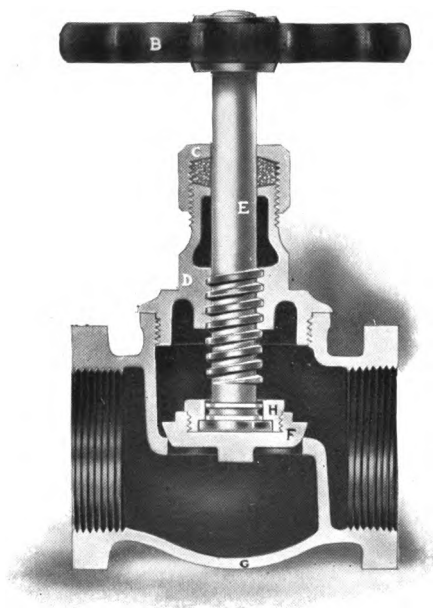
SIZE	INCHES	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Figs. 043 and 044, Screw End .....		.72	.77	1.00	1.26	1.80	2.52	3.50	5.30
Fig. 043, End to End .....		$1\frac{9}{16}$	$1\frac{3}{4}$	$2\frac{3}{16}$	$2\frac{5}{16}$	$2\frac{3}{16}$	$3\frac{1}{8}$	$3\frac{5}{8}$	$4\frac{5}{8}$
Fig. 044, Center to End .....		$\frac{25}{32}$	$\frac{7}{8}$	$1\frac{3}{8}$	$1\frac{5}{8}$	$1\frac{13}{16}$	$1\frac{9}{16}$	$1\frac{15}{16}$	$2\frac{5}{16}$

Valves having the hand wheels fastened with screws are furnished with English threads only

---

---

## Fairbanks Number 1 and Number 2 Standard Brass Globe and Angle Valves



B—Wheel  
C—Packing Nut  
D—Bonnet  
E—Spindle  
F—Disc  
G—Body  
H—Disc Lock Nut

In ordering parts, specify them by reference both to the names  
and to the descriptive letters



# Fairbanks Number 1 Standard Brass Globe and Angle Valves

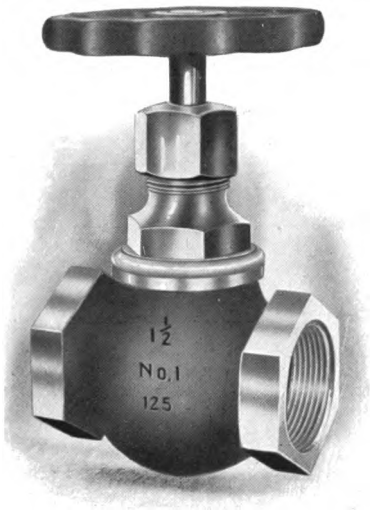


Figure 045—(Varnish)



Figure 046—(Vase)

Fairbanks Number 1 Standard Valves are made of high-grade steam bronze; are well proportioned, accurately machined and of good weight. Every valve is subjected to careful inspection and to hydraulic test. We do not recommend them for more than 125 pounds steam working pressure. The stuffing box is without a follower gland.

## PRICE LIST

SIZE	INCHES	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2
<b>Figs. 045 and 046, Screw End</b> .....		.72	.77	1.00	1.26	1.80	2.52	3.50	5.30	10.00
<b>Fig. 045, End to End</b> .....		1 13/16	2	2 1/8	2 5/8	3 3/16	3 5/8	4 1/16	5 1/16	6 1/16
<b>Fig. 046, Center to End</b> .....		1 1/2	1	1 1/16	1 5/16	1 1/2	1 1/16	2 1/2	2 1/2	3 1/2

# Fairbanks No. 2 Standard Brass Globe and Angle Valves

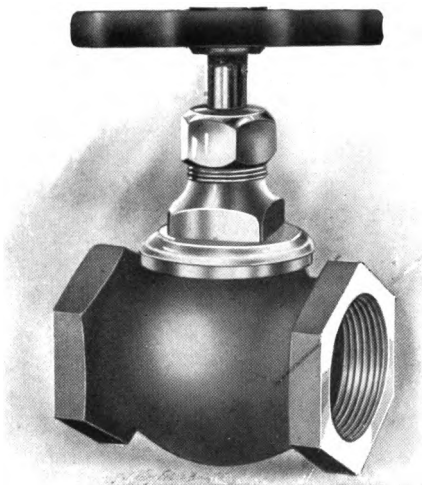


Figure 047—(Vassal)

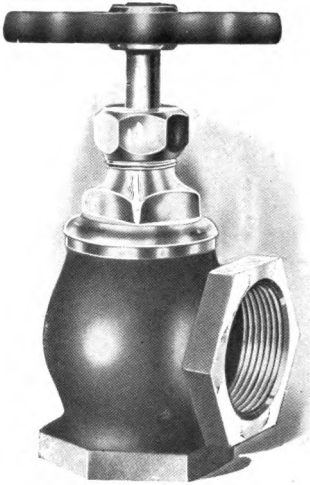


Figure 048—(Vast)

Fairbanks Number 2 Standard Valves are made of high-grade steam bronze; are well proportioned, accurately machined and of good weight. Every valve is subjected to careful inspection and to hydraulic test. We do not recommend them for more than 100 pounds steam working pressure.

The stuffing box is without a follower gland.

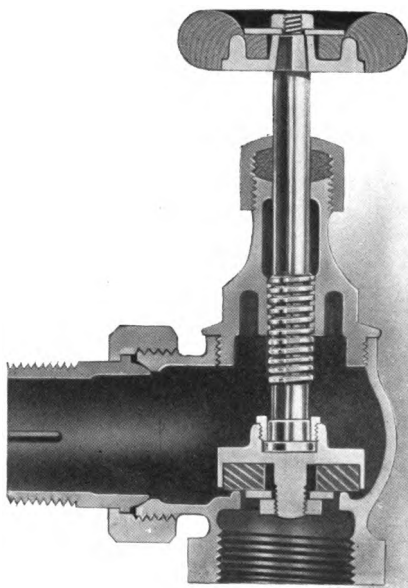
## PRICE LIST

SIZE	INCHES	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Figs. 047 and 048, Screw End.....		.72	.77	1.00	1.26	1.80	2.52	3.50	5.30
Fig. 047, End to End.....		$1\frac{9}{16}$	$1\frac{3}{4}$	$2\frac{3}{16}$	$2\frac{5}{16}$	$2\frac{3}{4}$	$3\frac{1}{8}$	$3\frac{5}{8}$	$4\frac{5}{8}$
Fig. 048, Center to End.....		$2\frac{1}{2}$	$2\frac{7}{8}$	$3\frac{1}{2}$	$4\frac{1}{2}$	$5\frac{1}{2}$	$6\frac{1}{2}$	$7\frac{1}{2}$	$8\frac{1}{2}$

---

---

## Fairbanks XL Standard Brass Steam Radiator Valve



Fairbanks XL Standard Brass Steam Radiator Valves are well proportioned and have full size unobstructed openings.

The discs are fitted with high-grade composition rings, suitable for the pressures carried.

These valves are made rough body, nickel plated all over, with highly polished trimmings, and are fitted with black wood wheels.

Unless otherwise specified, these valves will be threaded right hand on both inlet and outlet.

# Fairbanks XL Standard Brass Steam Radiator Valve

Angle Type, with Union

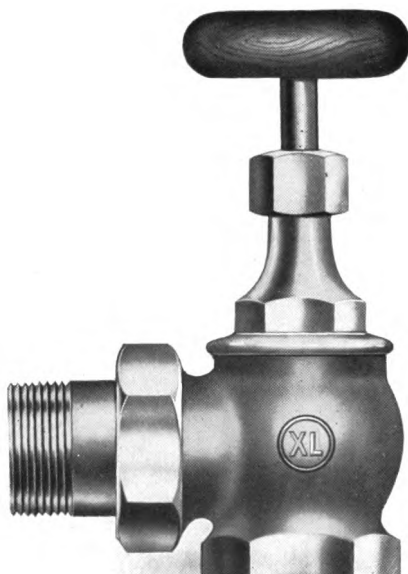


Figure 049—(Vastly)

## PRICE LIST

SIZE	INCHES	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Rough Body, Finished Trimmings, Nickel Plated All Over, Wood Wheel.....		3.15	3.80	4.75	6.40	8.10	13.10
Center Port to Top of Wheel when Open.....		$3\frac{3}{4}$	$4\frac{1}{4}$	$4\frac{5}{8}$	$5\frac{3}{16}$	$5\frac{9}{16}$	$6\frac{3}{16}$
Center Port to End of Nipple.....		$2\frac{7}{16}$	$2\frac{5}{8}$	$3\frac{1}{8}$	$3\frac{7}{16}$	$3\frac{9}{16}$	$4\frac{9}{16}$
Center Port to End of Hex. on Inlet.....		$1\frac{1}{8}$	$1\frac{3}{16}$	$1\frac{3}{8}$	$1\frac{9}{16}$	$1\frac{3}{4}$	$2\frac{1}{16}$

For Description see Page 37

# Fairbanks XL Standard Brass Steam Radiator Valves

Corner Type, with Union

RIGHT AND LEFT HAND

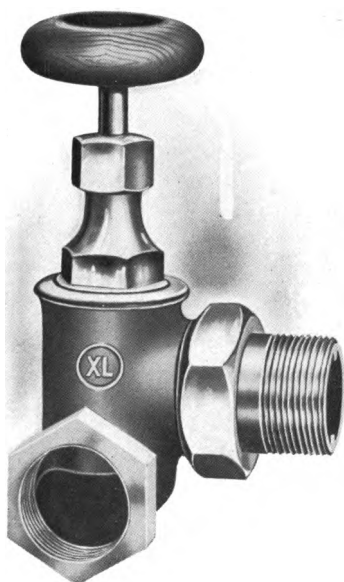


Figure 050—(Vat)

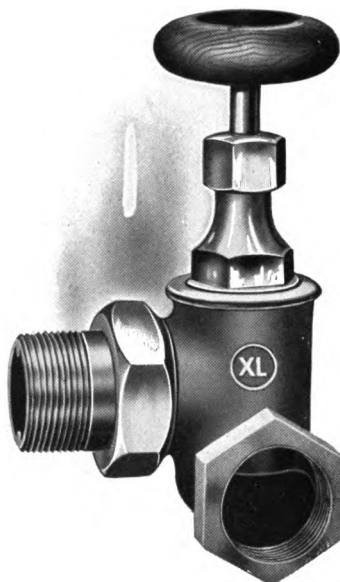


Figure 051—(Vatican)

## PRICE LIST

SIZE	INCHES	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Rough Body, Finished Trimmings, Nickel Plated						
All Over, Wood Wheel.....		4.20	5.25	7.05	8.95	14.45
Center Port to Top of Wheel when Open.....		$4\frac{1}{4}$	$4\frac{5}{8}$	$5\frac{3}{16}$	$5\frac{5}{16}$	$6\frac{13}{16}$
Center Port to End of Nipple.....		$2\frac{3}{4}$	$3\frac{1}{4}$	$3\frac{5}{8}$	$4\frac{1}{16}$	$4\frac{13}{16}$
Center Port Outlet to Center Port Inlet.....		$\frac{13}{16}$	$\frac{15}{16}$	$1\frac{1}{8}$	$1\frac{3}{8}$	$1\frac{11}{16}$
Center Valve to End of Hex. on Inlet.....		$1\frac{7}{16}$	$1\frac{5}{8}$	$1\frac{7}{8}$	$2\frac{1}{16}$	$2\frac{7}{16}$

For Description see Page 37

# Fairbanks XL Standard Brass Offset Globe Steam Radiator Valves

With Union

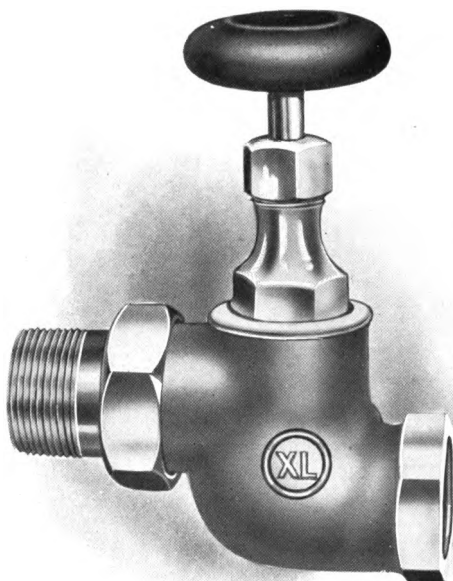


Figure 052—(Vault)

## PRICE LIST

SIZE	INCHES	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Rough Body, Finished Trimmings, Nickel Plated All Over, Wood Wheel		4.20	5.25	7.05	8.95	14.45
Center Port to Top of Wheel when Open.....	$4\frac{1}{4}$	$4\frac{5}{8}$	$5\frac{3}{8}$	$5\frac{15}{16}$	$6\frac{13}{16}$	
Center Port to End of Nipple.....	$2\frac{3}{4}$	$3\frac{1}{4}$	$3\frac{5}{8}$	$4\frac{1}{16}$	$4\frac{13}{16}$	
Center Port Outlet to Center Port Inlet.....	$1\frac{13}{16}$	$1\frac{15}{16}$	$1\frac{1}{8}$	$1\frac{3}{8}$	$1\frac{11}{16}$	
Center Valve to End of Hex. on Inlet.....	$1\frac{7}{16}$	$1\frac{5}{8}$	$1\frac{7}{8}$	$2\frac{1}{16}$	$2\frac{7}{16}$	

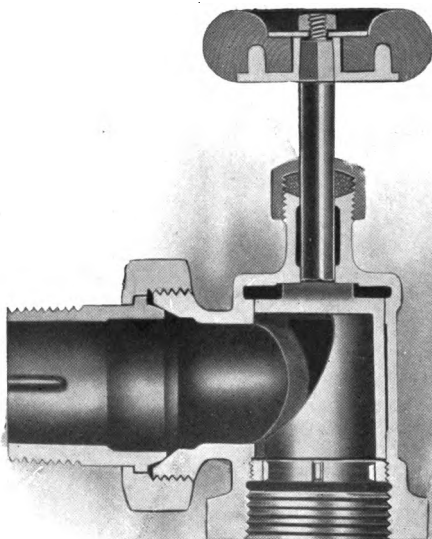
For Description see Page 37

---

---

# Fairbanks XL Standard Brass Hot Water Radiator Valve

With Union



Fairbanks XL Standard Hot Water Valves have the bonnet and the body cast in one piece, thus making one joint less than in most other designs. The disc and the stem are cast in one piece, which is sufficiently heavy to prevent the danger of breaking. This style of disc gives an unobstructed water-way and, being in contact only at the top and bottom, will not stick.

These valves are of the quick opening type, operating with a quarter turn of the handle. The lugs, which act as stops for the disc, are extra heavy and will not shear off.

They are made rough body, nickel plated all over, with highly polished trimmings, and are fitted with black wood wheels.

Unless otherwise specified, these valves will be threaded right hand on both inlet and outlet.

# Fairbanks XL Standard Brass Hot Water Radiator Valve

With Union

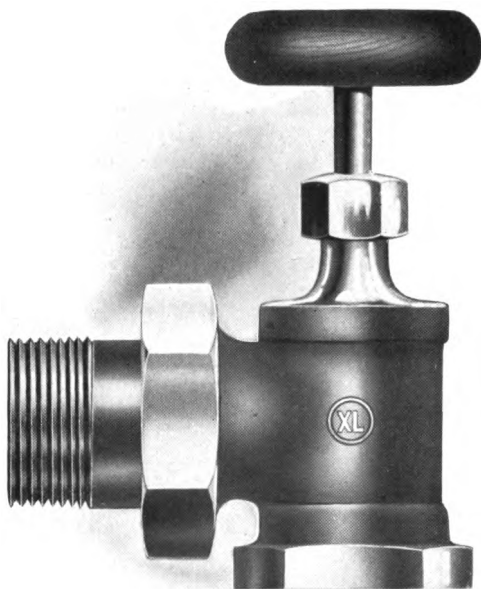


Figure 053—(Vaulting)

## PRICE LIST

SIZE	INCHES	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Rough Body, Finished Trimmings, Nickel Plated		2.40	2.85	3.65	5.05	7.10	10.85
All Over, Wood Wheel.....		$2\frac{5}{8}$	$3\frac{1}{16}$	$3\frac{7}{16}$	$3\frac{5}{16}$	$4\frac{1}{4}$	$5\frac{1}{16}$
Center Port to Top of Wheel when Open.....		$2\frac{7}{16}$	$2\frac{5}{8}$	$3\frac{1}{8}$	$3\frac{7}{16}$	$3\frac{13}{16}$	$4\frac{9}{16}$
Center Port to End of Nipple.....		$1\frac{1}{8}$	$1\frac{3}{16}$	$1\frac{9}{16}$	$1\frac{3}{4}$	$1\frac{13}{16}$	$2\frac{5}{16}$
Center Port to End of Hex. on Inlet.....							

For Description see Page 41



# Fairbanks XL Union Elbow

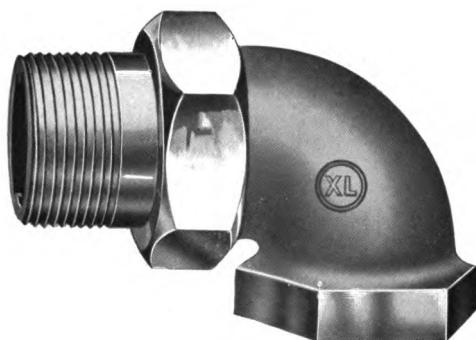


Figure 054—(Vaunt)

## PRICE LIST

SIZE	INCHES	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Rough Body, Finished Trimmings, Nickel Plated All Over.....		1.75	2.00	2.50	3.20	4.00	7.00
Center Port of Union to End of Nipple.....		$2\frac{7}{16}$	$2\frac{5}{8}$	$3\frac{1}{8}$	$3\frac{7}{16}$	$3\frac{13}{16}$	$4\frac{9}{16}$
Center Port of Nipple to Face of Hex. on Union.....		$1\frac{1}{8}$	$1\frac{1}{4}$	$1\frac{7}{16}$	$1\frac{5}{8}$	$1\frac{3}{4}$	$2\frac{1}{8}$



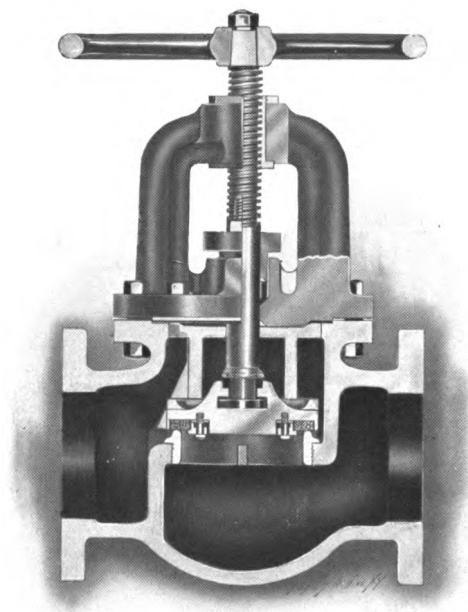
**Fairbanks**  
**Iron Body Globe and Angle**  
**Valves**

---

---

# Fairbanks Iron Body Globe Valves

## Renewable Vulcabeston Ring Disc



These valves embody the best up-to-date renewable features.

Universal recognition is now given by Engineers and experienced users to the superior results in service and to the

---

---

added durability in the life of a Globe Valve which is secured by the preservation of its seat at the sacrifice of a comparatively inexpensive renewable disc.

These valves have a **RAISED ROUND SEAT** upon which scale, grit or other sediment is not liable to lodge.

The standard ring we put in this style of valve is composed of asbestos fibre to which a waterproof vulcanizing material is added by a patented process, making a durable composition which will not crack or flake off. It is held in a machined recess by a malleable iron plate and brass screws. We furnish metal instead of fibre rings when desired.

The quickness of renewals is made possible by the ease with which the disc may be removed from the end of the spindle without the manipulation of nuts, pins, wires, or of anything liable to become detached while the valve is in use.

The disc is guided centrally to its seat, without danger of binding, by splines cast in the body of the valve.

**TO RENEW:** Simply unbolt and remove the bonnet of the valve, slip the old disc from the end of the spindle and substitute a new one. The whole operation requires but a few minutes' time and no skill, and **DOES NOT NECESSITATE THE REMOVAL OF BODY FROM PIPE LINE.**

Valves can be packed under pressure, when wide open.

# Fairbanks Iron Body Globe and Angle Valves

## Renewable Vulcabeston Ring Disc

350 Pounds Hydraulic Test Pressure  
150 Pounds Steam or Water Working Pressure

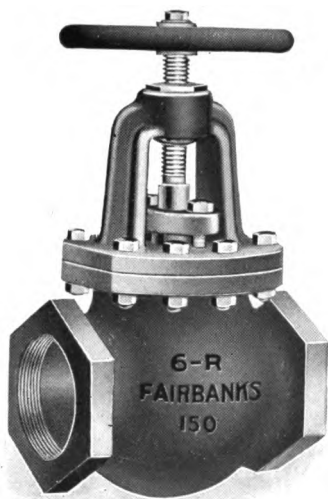


Figure 0101—Screw End (Veal)  
Figure 0102—Flange End (Vector)



Figure 0103—Screw End (Veda)  
Figure 0104—Flange End (Vedantic)

### PRICE LIST

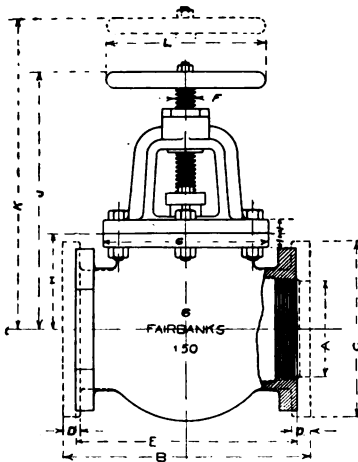
SIZE	INCHES	2	2½	3	3½	4	4½	5	6	7	8
Figs. 0101 and 0103, Screw End...		10.00	12.00	16.75	19.50	24.00	32.00	40.00	48.00	80.00	90.00
Figs. 0102 and 0104, Flange End...		11.75	14.00	18.50	21.50	26.00	34.00	42.00	50.00	80.00	90.00

Made in Bronze at Special Prices

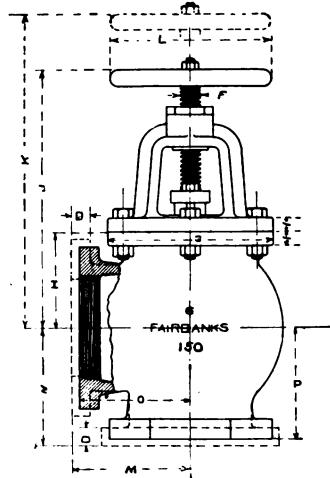
For Detail Dimensions see Page 49  
For Description see Pages 46 and 47  
For Drilling see Page 156

# Fairbanks Iron Body Globe and Angle Valves

## Renewable Vulcabeston Ring Disc



Figures 0101 and 0102



Figures 0103 and 0104

### DETAIL DIMENSIONS

SIZE	INCHES	A	2	2½	3	3½	4	4½	5	6	7	8
Face to Face, Flange End.....	B	6½	8	8½	10½	10¾	11¾	12	15½	15¾	17	
Diameter of Flanges.....	C	6	7	7½	8½	9	9¼	10	11	12½	13½	
Thickness of Flanges.....	D	¾	1½	¾	1½	1½	1½	1½	1½	1½	1½	
End to End, Screw End.....	E	6¾	7¾	9	10	10¾	11¾	12	14	15	17¼	
Diameter of Spindle.....	F	1½	1½	1½	1	1½	1½	1¼	1¼	1¾	1½	
Diameter of Body and Bonnet Flange.....	G	5¾	6	7	7½	8½	9	9½	11½	12¾	13¾	
Center of Port to Top of Body Flange.....	H	3½	3½	3½	3¾	4½	4¾	5½	6	7	8½	
Thickness of Body and Bonnet Flange.....	I	¾	1½	¾	¾	¾	¾	¾	¾	¾	1	
Center of Port to Top of Wheel—Closed.....	J	9½	9½	10½	11¾	13¾	13¾	15½	17½	18½	20¾	
Center of Port to Top of Wheel—Open.....	K	10½	10½	11½	13¾	14¾	15	17½	19½	20½	23½	
Diameter of Handwheel.....	L	6½	6½	7½	7½	9	9	10	10	12	14	
Center to End, Angle, Flange End.....	M	4½	4½	5	5½	6	6¼	6½	7¾	7¾	8½	
Center to Bottom, Angle, Flange End.....	N	4½	4½	5	5½	6	6¼	6½	7¾	7¾	8½	
Center to End, Angle, Screw End.....	O	3¾	4¾	4¾	4¾	5¼	5¼	6	7	7½	8½	
Center to Bottom, Angle, Screw End.....	P	3¾	4¾	4¾	4¾	5¼	5¼	6	7	7½	8½	

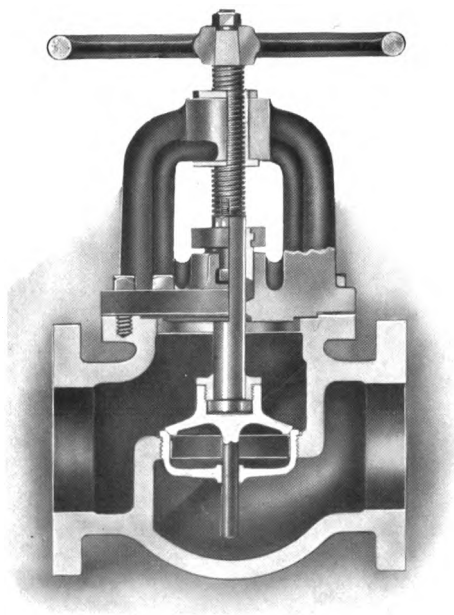
---

---

# Fairbanks Heavy and Extra Heavy Iron Body Globe and Angle Valves

Hard Metal Working Parts

Bevel Disc



SECTIONAL VIEW  
Showing Interior Parts



---

---

These valves have heavy bodies with extra heavy hard metal seat and swivel disc, and are designed with large and free openings.

The swivel disc is made with a guide. In valves up to and including  $3\frac{1}{2}$ " the discs are of solid hard metal, extra heavy. In valves 4" and larger they are of cast iron, with hard metal facing.

The guide on the disc, in combination with the bridge on the seat, insures the proper seating of the disc and prevents it from rattling. They may be packed under pressure, when wide open.

To secure additional strength and durability, the spindle in all sizes is of steel, made rust-proof, and the stuffing box is of malleable iron with a brass follower.

Our heavy and extra heavy valves are furnished with  $\frac{1}{32}$ " raised faces on the end flanges, for which no extra charge is made.

# Fairbanks Heavy Iron Body Globe and Angle Valves

**Hard Metal Working Parts**

**Bevel Disc**

450 Pounds Hydraulic Test Pressure

175 Pounds Steam Working Pressure    225 Pounds Water Working Pressure



## GLOBE

Figure 0105—Screw End (Vedette)

Figure 0106—Flange End (Vedic)

## ANGLE

Figure 0107—Screw End (Veer)

Figure 0108—Flange End (Vega)

## PRICE LIST

SIZE INCHES	2	2½	3	3½	4	4½	5	6	7	8	10	12
Figs. 0105 and 0107, Screw End.	13.00	16.00	20.00	24.00	28.00	35.00	42.00	50.00	80.00	90.00	.....	.....
Figs. 0106 and 0108, Flange End	15.00	18.00	23.00	28.00	33.00	40.00	47.00	55.00	85.00	95.00	145.00	200.00
Face to Face, Flange End.....	9	10	11	12	13	13½	14½	16	17½	20	22½	25½
Diameter of Flanges.....	6½	7½	8¼	9	10	10½	11	12½	14	15	17½	20
End to End Screw End.....	8¾	9½	10¾	11¾	12	12¾	13¾	15¼	16¾	18½	.....	.....

For Description see Page 51

For Drilling see Page 157

# Fairbanks Extra Heavy Iron Body Globe and Angle Valves

Hard Metal Working Parts

Bevel Disc

600 Pounds Hydraulic Test Pressure

250 Pounds Steam Working Pressure    350 Pounds Water Working Pressure



**GLOBE**

Figure 0109—Screw End (Vegetable)

Figure 0110—Flange End (Vegetal)

**ANGLE**

Figure 0111—Screw End (Vegetate)

Figure 0112—Flange End (Vegete)

## PRICE LIST

SIZE INCHES	2	2½	3	3½	4	4½	5	6	7	8	10	12
Figs. 0109, 0111, Screw End....	26.00	33.00	37.00	42.00	46.00	56.00	61.00	75.00	95.00	114.00	.....	.....
Figs. 0110, 0112, Flange End..	27.50	35.00	40.00	45.00	50.00	60.00	65.00	80.00	100.00	120.00	200.00	300.00
Face to Face, Flange End...	10½	11½	12½	13¼	14	15	15¾	17½	19¼	21	24½	28
Diameter of Flanges.....	6½	7½	8¼	9	10	10½	11	12½	14	15	17½	20
End to End, Screw End ...	9½	10¾	11¾	12¼	13	14	15	16½	18¼	20	.....	.....

For Description see Page 51

For Drilling see Page 157

# Fairbanks Renewable Iron Body Globe and Angle Valves

## DISCS

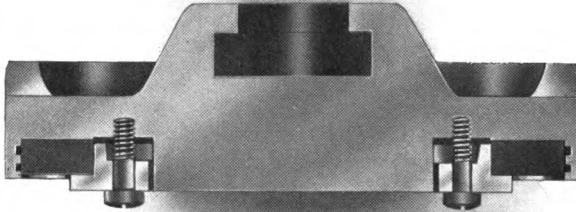


Figure 0113—Iron Holder Vulcabeston Ring Disc (Vehement)  
Figure 0114—Iron Holder Bronze Ring Disc (Vehicle)  
Figure 0115—Iron Holder filled with Special Metal (Vehicled)

### PRICE LIST

Iron Holder Globe Discs Complete											
SIZE	INCHES	2	2½	3	3½	4	4½	5	6	7	8
Fig. 0113.....	}	.40	.50	.65	.85	1.00	1.30	1.50	2.00	2.90	3.30
Fig. 0114.....											
Fig. 0115.....											

Disc Rings Only											
SIZE	INCHES	2	2½	3	3½	4	4½	5	6	7	8
Vulcabeston.....	}	.16	.22	.26	.37	.45	.53	.58	.78	.95	1.10
Bronze.....											
Special Metal.....											

---

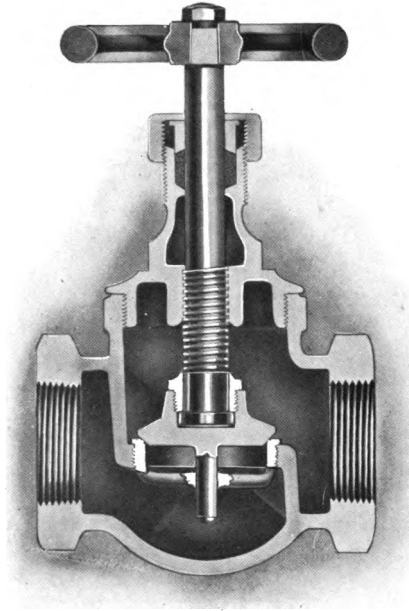
---

# Fairbanks Iron Body, Globe, Angle and Cross Valves

**Brass Hub**

**Hard Metal Working Parts**

**Bevel Disc**



Fairbanks Iron Body Brass Hub Globe, Angle and Cross Valves, of design shown, are more compact and heavier than many other makes of similar type now on the market.

The spindle is of large diameter, the stuffing box has a gland follower, and the disc seat is heavy.

They are specially desirable for traction engine use, throttle valves and steam stops in any service; and they are recommended when quality is the first consideration.

They may be packed under pressure, when wide open.

Carefully inspected and tested under hydraulic pressure.

---

---

# Fairbanks Iron Body Globe and Angle Valves

Brass Hub      Hard Metal Working Parts      Bevel Disc

350 Pounds Hydraulic Test Pressure  
150 Pounds Steam or Water Working Pressure

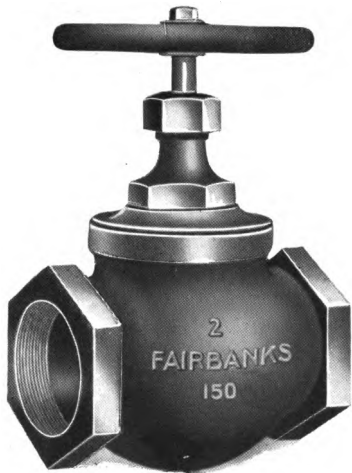


Figure 0116—Screw End (Vehmic)  
Figure 0117—Flange End (Veined)

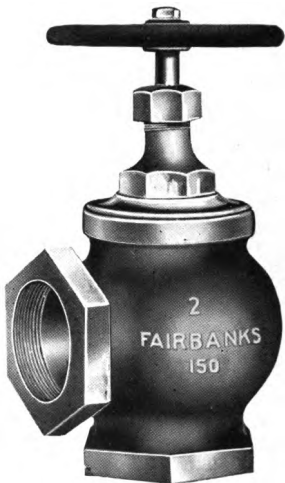


Figure 0118—Screw End (Veinlet)  
Figure 0119—Flange End (Veiney)

## PRICE LIST

SIZE	INCHES	1	1¼	1½	2	2½	3
Figs. 0116 and 0118, Screw End.....		3.00	4.00	5.00	7.25	11.00	16.00
Figs. 0117 and 0119, Flange End.....		4.00	5.00	6.00	8.50	13.00	18.00
Diameter of Flanges.....		4	4½	5	6	7	7½

For Description see Page 55  
For Drilling see Page 156

# Fairbanks Iron Body Cross Valves

Brass Hub

Hard Metal Working Parts

Bevel Disc

350 Pounds Hydraulic Test Pressure  
150 Pounds Steam or Water Working Pressure

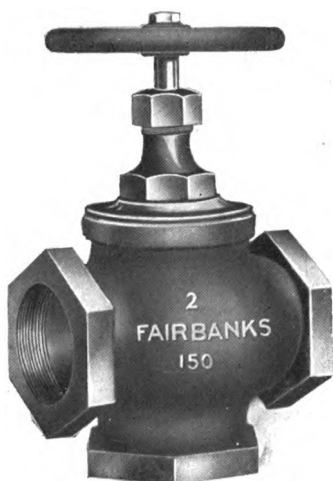


Figure 0120—Screw End (Velar)

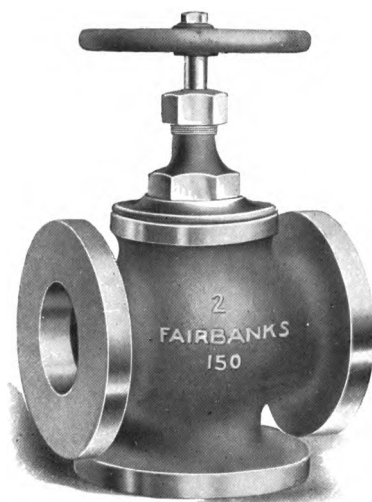


Figure 0121—Flange End (Vellum)

## PRICE LIST

SIZE	INCHES	2	2½	3
Fig. 0120, Screw End.....		14.00	16.00	21.00
Fig. 0121, Flange End.....		17.00	19.00	24.00
Diameter of Flanges.....		6	7	7½

For Description see Page 55  
For Drilling see Page 156

# Fairbanks Iron Body Cross Valves

## Renewable Vulcabeston Ring Disc

350 Pounds Hydraulic Test Pressure

150 Pounds Steam or Water Working Pressure

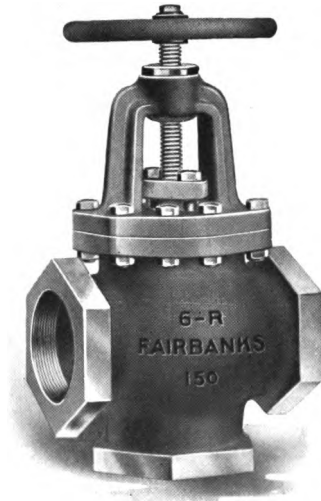


Figure 0122—Screw End (Veloce)

Figure 0123—Flange End (Velocity)

SIZE	INCHES	2	2½	3	3½	4	4½	5	6
Fig. 0122, Screw End.....		14.00	16.00	21.00	26.00	30.00	42.00	45.00	58.00
Fig. 0123, Flange End.....		17.00	19.00	24.00	29.00	33.00	45.00	48.00	62.00
Fig. 0122, End to End.....		6¾	7⅞	9	10	10⅜	11¾	12	14
Fig. 0122, Center to End, Bottom Inlet		3⅜	4¼	4⅝	4⅞	5¼	5¾	6	7
Fig. 0123, Face to Face.....		6½	8	9	10⅛	10¾	11⅜	12	15½
Fig. 0123, Center to Face, Bottom Inlet		4⅛	4⅝	5	5½	6	6¼	6½	7⅞
Diameter of Flanges.....		6	7	7½	8½	9	9¼	10	11

For Description see Pages 46 and 47

For Drilling see Page 156



**Fairbanks Automatic Non-Return  
Stop-Check and  
Back Pressure Valves**

---

---

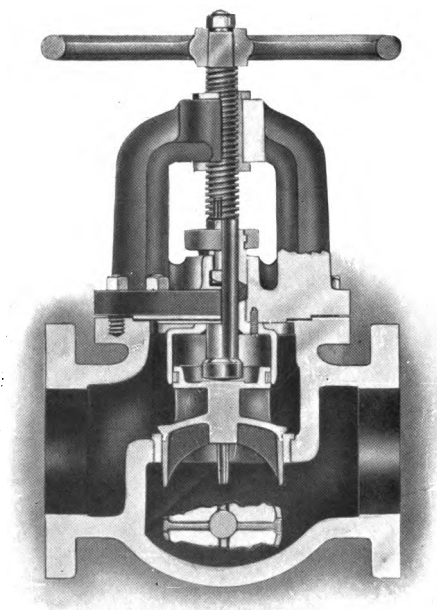
# Fairbanks Extra Heavy Automatic Stop-Check Valves, Globe and Angle

**Semi-Steel**

**Hard Metal Seats**

**Bronze Mounted**

**For Steam Working Pressures up to 250 Pounds**



All steam plants should use one of these Combination-Stop-Check Valves in the piping from each boiler to the Main Steam Line or Header.

In the event of a blow-out or other trouble, they will automatically cut out the affected boiler and act as a non-return valve to prevent any back flow of steam from the main.

They also act as a safety Stop Valve, preventing steam from backing into a cold boiler while men are at work inside.

This valve will remain closed until the pressure in the boiler to which it is connected reaches the full pressure of steam in the main, when it will automatically open. A sluggish boiler may thus be readily detected.

These valves should always be placed with the wheel UP. They should also be installed so that the boiler pressure will come underneath the beveled disc.

The Internal Dash Pot and Piston prevent chattering.

To distinguish these valves from our regular type of Extra Heavy Globe and Angle Valves, the hand wheel has a special marking.

FOR SUPERHEATED STEAM, THESE VALVES WILL BE MADE TO ORDER WITH CAST STEEL BODY AND YOKE AND NICKEL SEAT AND RING. Quotations upon application.

#### GLOBE

Figure 0124—Screw End (Velours)

Figure 0125—Flange End (Velvet)

#### ANGLE

Figure 0126—Screw End (Velvety)

Figure 0127—Flange End (Vend)

### PRICE LIST

SIZE	INCHES	2	2½	3	3½	4	4½	5
Fig. 0124, Globe, Screw End.....		38.50	43.00	47.00	51.00	55.00	70.00	75.00
Fig. 0125, Globe, Flange End.....		40.00	45.00	50.00	55.00	60.00	75.00	80.00
Fig. 0126, Angle, Screw End.....		38.50	43.00	47.00	51.00	55.00	70.00	75.00
Fig. 0127, Angle, Flange End.....		40.00	45.00	50.00	55.00	60.00	75.00	80.00
End to End, Globe, Screw End.....		9½	10¾	11¾	12¾	13	14	15
Face to Face, Globe, Flange End...		10½	11½	12½	13¼	14	15	15¾
Diameter of Flanges.....		6½	7½	8¼	9	10	10½	11

SIZE	INCHES	6	7	8	10	12	14	15
Fig. 0124, Globe, Screw End.....		90.00	115.00	140.00	230.00	360.00	480.00	480.00
Fig. 0125, Globe, Flange End.....		95.00	120.00	145.00	240.00	360.00	480.00	480.00
Fig. 0126, Angle, Screw End.....		90.00	115.00	140.00	230.00	360.00	480.00	480.00
Fig. 0127, Angle, Flange End.....		95.00	120.00	145.00	240.00	360.00	480.00	480.00
End to End, Globe, Screw End.....		16½	18¼	20	23¼	28	33	33
Face to Face, Globe, Flange End...		17½	19¼	21	24½	28	33	33
Diameter of Flanges.....		12½	14	15	17½	20	22½	23½

For Description see Page 60

For Drilling see Page 157

# Fairbanks Noiseless Back Pressure Valves

Iron Body      Double Disc      Brass Trimmings  
For Non-Condensing Engines Only

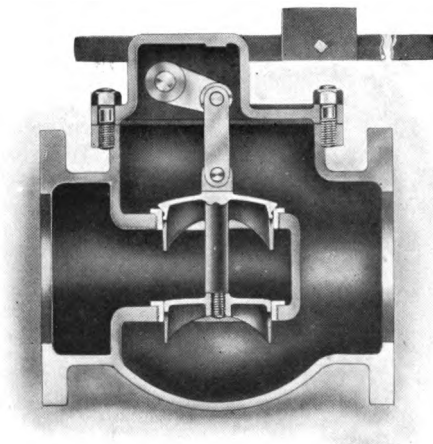


Figure 0128—Screw End (Vendor)

Figure 0129—Flange End (Venerate)

These valves, having double discs, are semi-balanced and their combined areas are equal to the full area of the pipe. They are weighted to stand a back pressure up to and including 6 pounds, and will be so furnished unless otherwise specified. When required, we will make them to order for pressures up to and including 30 pounds, without extra charge.

## PRICE LIST

SIZE	INCHES	2	2½	3	3½	4	4½	5	6
Fig. 0128, Screw End.....		14.00	16.00	18.00	22.00	25.00	30.00	40.00	60.00

SIZE	INCHES	2	2½	3	3½	4	4½	5	6
Fig. 0129, Flange End .....		14.00	16.00	18.00	22.00	25.00	30.00	40.00	60.00
Diameter of Flanges .....		6	7	7½	8½	9	9¼	10	11
SIZE	INCHES	7	8	9	10	12	14	15	16
Fig. 0129, Flange End .....		80.00	100.00	120.00	145.00	220.00	345.00	400.00	465.00
Diameter of Flanges .....		12½	13½	15	16	19	21	22¼	23½
SIZE	INCHES	18	20	24					
Fig. 0129, Flange End .....		600.00	750.00	1050.00					
Diameter of Flanges .....		25	27½	32					

For Drilling see Page 156

**Fairbanks  
Renewable Brass Gate  
Valves**

---

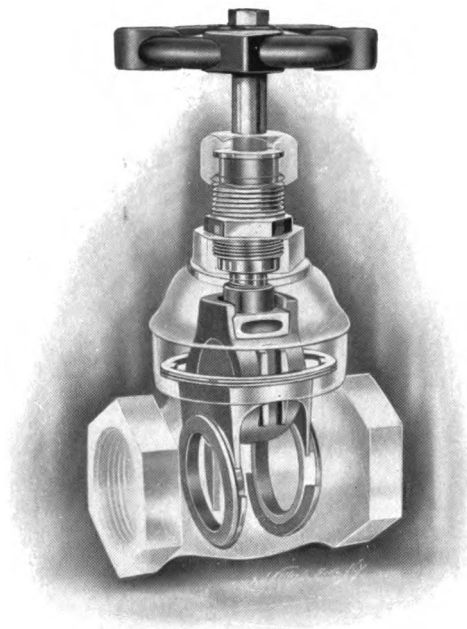
---

# Fairbanks Brass Gate Valves

## Wedge Pattern

Renewable Bronze Seat Rings      Cage Construction

PATENTED



The renewable features of these valves have been perfected, are simple and may be relied upon as being entirely effective.

The seat rings ordinarily furnished are of bronze, but they may be made of fibre, metals or other materials particularly adapted to the requirements of any special service.

Renewals may be easily, quickly and efficiently made, when occasions require, without taking the valve from the pipe line, by removing the valve hub and unscrewing the retaining ring designed to hold the seat rings accurately and firmly in position.

These valves are double seated and may be used with the pressure applied at either end.

---

---

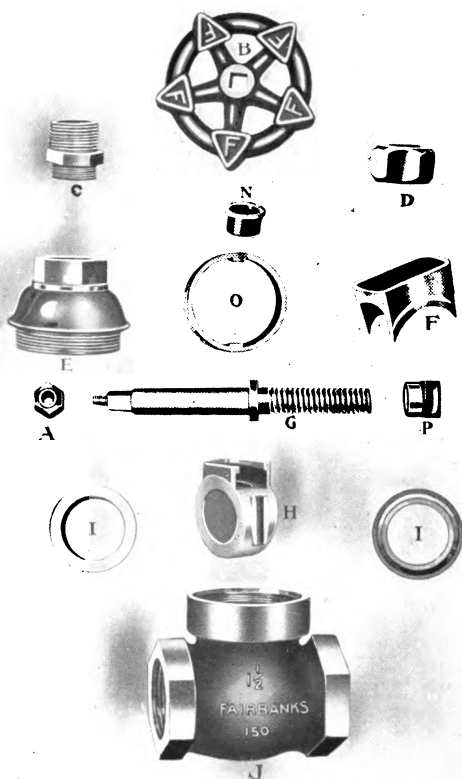
# Fairbanks Brass Gate Valves

## Wedge Pattern

Renewable Bronze Seat Rings

Cage Construction

### PARTS



A-Wheel Stem Nut  
B-Wheel  
C-Stuffing Box Gland  
D-Stuffing Box  
Packing Nut

E-Bonnet  
F-Cage or Saddle  
G-Spindle  
H-Wedge  
I-Seat Rings

J-Body  
N-Follower Gland  
O-Cage Locking Ring  
P-Spindle Nut

In ordering parts, specify them by reference both to the names  
and to the descriptive letters

# Fairbanks Brass Gate Valves

Renewable Bronze Seat Rings

Wedge Pattern

300 Pounds Hydraulic Test Pressure  
150 Pounds Steam or Water Working Pressure

PATENTED

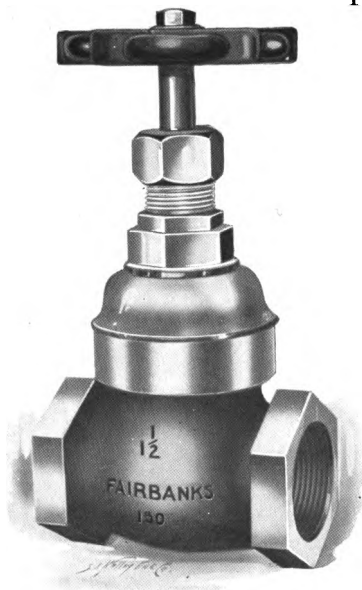


Figure 0201—Screw End (Venerator)  
Figure 0202—Flange End (Venetian)

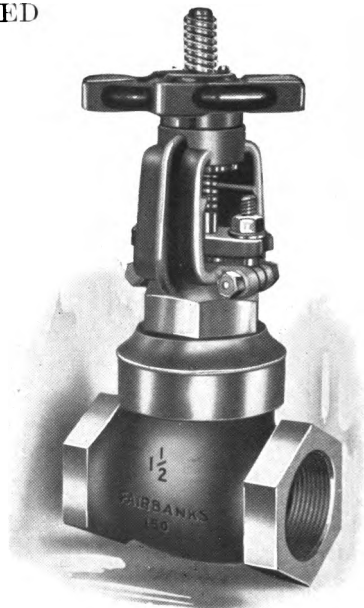


Figure 0203—Screw End (Veneur)  
Figure 0204—Flange End (Venew)

## PRICE LIST

Bolted Bonnet

SIZE	INCHES	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
Fig. 0201, Screw End, Stationary Spindle.....	}	1.50	1.50	1.65	2.20	2.80	4.00	5.30	7.80	17.00	23.00
Fig. 0202, Flange End, Stationary Spindle.....		.....	.....	.....	.....	7.50	9.35	14.00	16.00	26.50	35.75
Fig. 0203, Screw End, Rising Spindle.....		.....	.....	4.25	5.00	5.80	7.50	9.00	12.50	.....	.....
Fig. 0204, Flange End, Rising Spindle.....		.....	.....	.....	.....	10.50	13.00	17.75	20.50	.....	.....

For valves with Lock Shield, Union End, Brass Wheel and Special Finishes, prices on application

For Detail Dimensions see Page 67

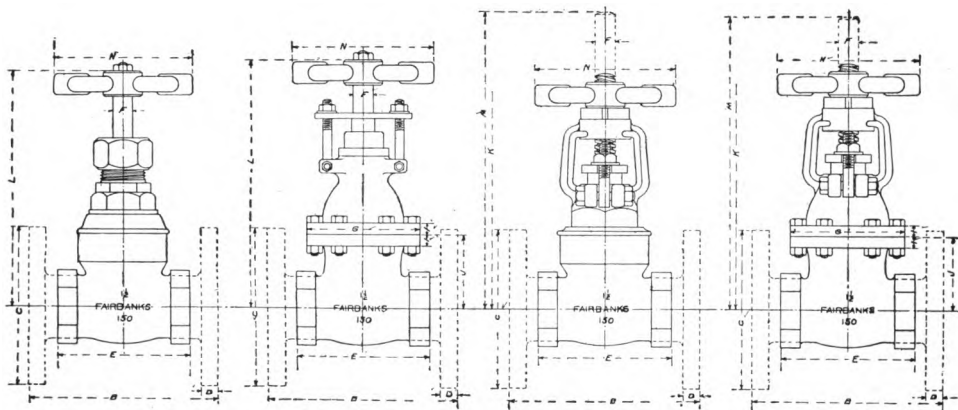
For Description see Page 64



# Fairbanks Brass Gate Valves

Renewable Bronze Seat Rings

Wedge Pattern



Figures 0201 and 0202

Figures 0203 and 0204

## DETAIL DIMENSIONS

Bolted Bonnet

SIZE	INCHES	A	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Face to Face, Flange End.....	B	.....	.....	.....	.....	$4\frac{1}{4}$	$4\frac{3}{4}$	$5\frac{1}{16}$	6	$6\frac{13}{16}$	$8\frac{1}{8}$	.....
Diameter of Flanges.....	C	.....	.....	.....	.....	4	$4\frac{1}{2}$	5	6	7	$7\frac{1}{2}$	.....
Thickness of Flanges.....	D	.....	.....	.....	.....	$\frac{7}{16}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{9}{16}$	$\frac{5}{8}$	$\frac{11}{16}$	.....
End to End, Screw End.....	E	$2\frac{1}{8}$	$2\frac{1}{8}$	$2\frac{1}{2}$	$2\frac{15}{16}$	$3\frac{3}{8}$	$3\frac{13}{16}$	$4\frac{1}{4}$	$5\frac{1}{8}$	$5\frac{3}{4}$	$6\frac{1}{2}$	.....
Diameter of Spindle.....	F	$\frac{5}{16}$	$\frac{5}{16}$	$\frac{3}{8}$	$\frac{7}{16}$	$\frac{1}{2}$	$\frac{9}{16}$	$\frac{9}{16}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{13}{16}$	.....
Diameter of Body and Bonnet Flange.....	G	.....	.....	.....	.....	.....	.....	.....	.....	$4\frac{3}{16}$	$4\frac{5}{8}$	.....
Thickness of Body and Bonnet Flange.....	I	.....	.....	.....	.....	.....	.....	.....	.....	$\frac{1}{2}$	$\frac{1}{2}$	.....
Center of Port to Top of Body and Bonnet Flange.....	J	$1\frac{1}{16}$	$1\frac{1}{16}$	$1\frac{5}{16}$	$1\frac{5}{8}$	$1\frac{7}{8}$	$2\frac{1}{8}$	$2\frac{3}{8}$	$2\frac{15}{16}$	$3\frac{3}{4}$	4	.....
Center of Port to Top of Spindle—Rising Spindle—Closed.....	K	.....	.....	$4\frac{1}{2}$	$5\frac{3}{16}$	$5\frac{7}{8}$	$6\frac{5}{8}$	$7\frac{3}{8}$	$8\frac{13}{16}$	.....	.....	.....
Center of Port to Top of Handwheel, Stationary Spindle.....	L	$3\frac{7}{16}$	$3\frac{7}{16}$	$4\frac{9}{16}$	$5\frac{5}{16}$	$5\frac{15}{16}$	$6\frac{5}{8}$	$6\frac{15}{16}$	$8\frac{1}{8}$	$10\frac{3}{8}$	$11\frac{5}{16}$	.....
Center of Port to Top of Spindle—Rising Spindle—Open.....	M	.....	.....	$5\frac{1}{8}$	$6\frac{1}{16}$	$6\frac{15}{16}$	8	$8\frac{15}{16}$	$11\frac{1}{16}$	.....	.....	.....
Diameter of Handwheel.....	N	$2\frac{3}{4}$	$2\frac{3}{4}$	3	$3\frac{1}{4}$	$3\frac{1}{2}$	$3\frac{3}{4}$	4	$4\frac{1}{2}$	5	$5\frac{1}{2}$	.....

# Fairbanks Brass Gate Valves

**Non-renewable Seats      Wedge Pattern**

300 Pounds Hydraulic Test Pressure    125 Pounds Steam Working Pressure



**Figure 0205—Screw End (Veney)**

## PRICE LIST

SIZE	INCHES	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Fig. 0205, Screw End.....		1.40	1.80	2.50	3.50	5.00	7.50
End to End, Screw End.....		2	$2\frac{1}{4}$	$2\frac{5}{8}$	3	$3\frac{1}{2}$	4
Center of Port to Top of Wheel.....		$3\frac{5}{8}$	$4\frac{9}{16}$	$5\frac{1}{8}$	$5\frac{3}{16}$	$6\frac{3}{8}$	$7\frac{1}{2}$
Diameter of Hand Wheel.....		$2\frac{3}{8}$	$2\frac{3}{4}$	$3\frac{1}{8}$	$3\frac{3}{4}$	$4\frac{1}{4}$	$4\frac{1}{2}$

---

---

# Fairbanks Brass Gate Valves

## Heavy Pattern

Non-renewable Seats      Wedge Pattern

450 Pounds Hydraulic Test Pressure

175 Pounds Steam Working Pressure    225 Pounds Water Working Pressure

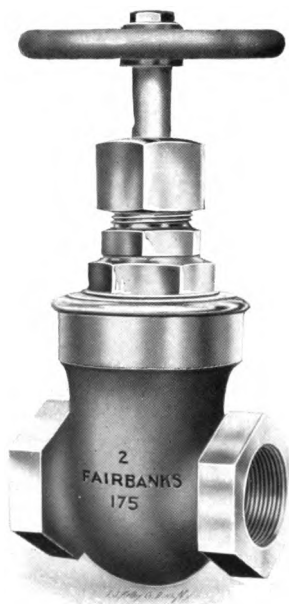


Figure 0206—Screw End (Venge)  
Figure 0207—Flange End (Vengeance)

### PRICE LIST

SIZE	INCHES	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Fig. 0206, Screw End.....		1.80	2.30	3.00	4.20	6.00	9.00	17.00	24.00
Fig. 0207, Flange End.....		...	...	5.90	8.10	11.00	16.00	29.00	39.00

For Detail Dimensions see Page 71

---

---

# Fairbanks Brass Gate Valves

## Extra Heavy Pattern

Non-renewable Seats

Wedge Pattern

800 Pounds Hydraulic Test Pressure

250 Pounds Steam Working Pressure    350 Pounds Water Working Pressure

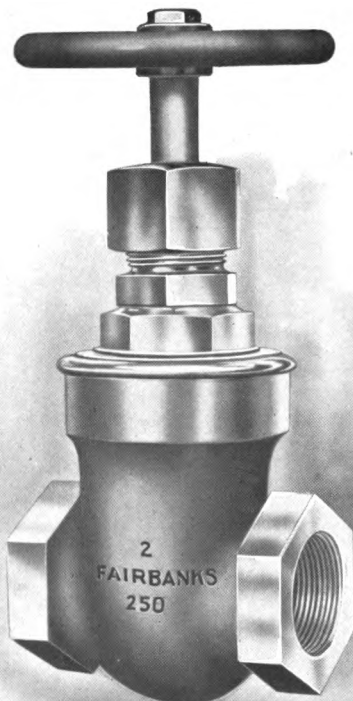


Figure 0208—Screw End (Vengeful)

Figure 0209—Flange End (Veni)

### PRICE LIST

SIZE	INCHES	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Fig. 0208, Screw End.....		3.75	4.25	5.50	7.75	10.00	15.00
Fig. 0209, Flange End.....		...	...	11.00	15.00	21.00	28.00

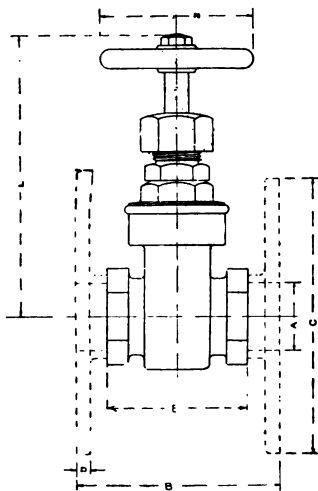
For Detail Dimensions see Page 71

# Fairbanks Brass Gate Valves

## Heavy and Extra Heavy Patterns

Non-renewable Seats

Wedge Pattern



Figures 0206 and 0207

Figures 0208 and 0209

### DETAIL DIMENSIONS

#### Heavy

SIZE	INCHES	A	1/2	3/4	1	1 1/4	1 1/2	2
Face to Face, Flange End.....	B	...	...	...	3 5/8	4 1/4	4 11/16	5 9/16
Diameter of Flanges.....	C	...	...	...	4 1/2	5	6	6 1/2
Thickness of Flanges.....	D	...	...	...	7/16	1 1/8	1 1/2	9/16
End to End, Screw End.....	E	2 7/16	2 11/16	3	3 7/16	3 3/4	4 1/2	4 1/2
Center of Port to Top of Wheel.....	L	4 3/16	4 15/16	5 1/16	6 7/16	7 1/16	8 3/4	8 3/4
Diameter of Hand Wheel.....	N	2 3/8	2 3/4	3 1/16	3 3/8	3 3/4	4 1/2	4 1/2

#### Extra Heavy

SIZE	INCHES	A	1/2	3/4	1	1 1/4	1 1/2	2
Face to Face, Flange End.....	B	...	...	...	4 3/16	4 9/16	5 5/16	6 3/16
Diameter of Flanges.....	C	...	...	...	4 1/2	5	6	6 1/2
Thickness of Flanges.....	D	...	...	...	1 1/2	1 7/8	2 1/8	2 1/8
End to End, Screw End.....	E	2 3/4	3 1/4	3 5/8	4 1/8	4 9/16	5 1/8	5 1/8
Center of Port to Top of Hand Wheel.....	L	5 3/8	5 13/16	7	7 1/16	8 1/2	9 3/4	9 3/4
Diameter of Hand Wheel.....	N	3 1/16	3 3/8	3 3/4	4 1/2	5 3/8	5 3/4	5 3/4

---

---

# Fairbanks Renewable Iron Body Gate Valves

## Wedge Pattern

These valves have been designed with strength adequate to resist pipe strains developed at the maximum steam pressures for which they are recommended.

Renewable seat rings, made of high-grade bronze, are held in the body casting by specially constructed cut threads and may be changed by the use of an appropriate wrench or other tool—See Figure 0316—without removing the valve from the pipe line.

The seat rings engage with the accurately finished steam bronze faces of a double taper solid wedge, making tight joints, and the pressure may be applied to either end of the valve.

The spindle is relieved from side pressure strains by the play of a loose stem nut and by guides in the valve body.

The hinge bolts of the stuffing box and the shelf on the yoke of our rising spindle valve, for holding the gland during the process of packing the stuffing box, are features which Engineers will appreciate.

The gate by-pass is similar in design and is secured to the body of the main valve by one joint only.

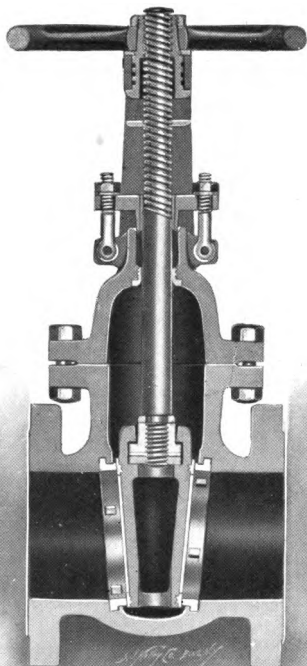
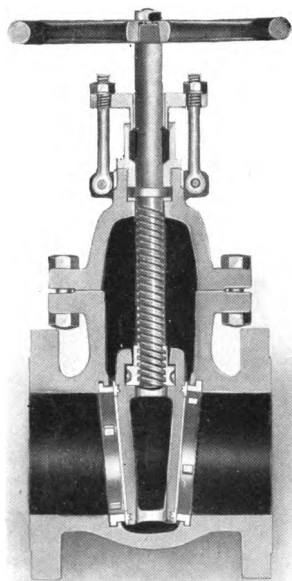
These valves are made with rising or stationary spindles; with all parts interchangeable; and the gland may be packed under pressure.

The heavy and extra heavy valves are made with  $\frac{1}{32}$ " raised faces on the end flanges, without extra charge.

---

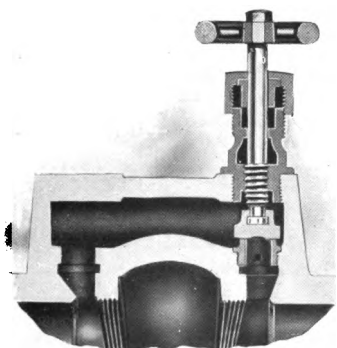
# Fairbanks Renewable Iron Body Gate Valves

## Wedge Pattern

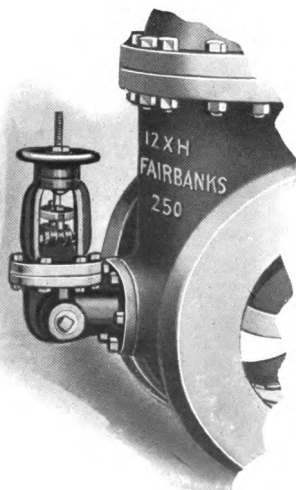


## Globe By-pass

We are prepared to furnish a Globe By-pass as illustrated. The body of this By-pass is an integral part of the Main valve



body. The disc, spindle, hub, packing nut and follower are of steam bronze. This style of By-pass is generally used on valves  $4\frac{1}{2}$ " and smaller.



# Fairbanks Iron Body Gate Valves

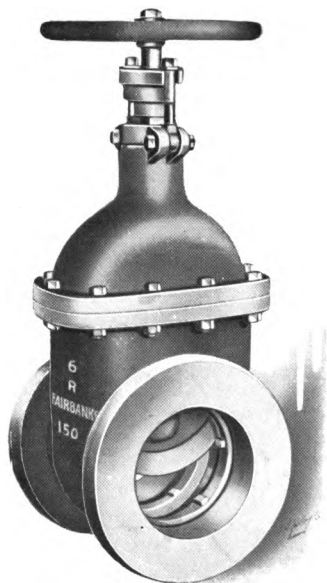
Renewable Bronze Seat Rings

Wedge Pattern

Bronze Mounted

300 Pounds Hydraulic Test Pressure

125 Pounds Steam Working Pressure 150 Pounds Water Working Pressure



## STATIONARY SPINDLE

Figure 0301—Screw End (Venial)

Figure 0302—Flange End (Venison)

## RISING SPINDLE

Figure 0303—Screw End (Venom)

Figure 0304—Flange End (Venom)

Rising Spindle, Sizes 6 inches and smaller have Yoke Integral with Bonnet

## PRICE LIST

SIZE	INCHES	2	2½	3	3½	4	4½	5	6
Fig. 0301, Screw End.....		10.00	11.50	14.00	17.00	19.00	24.00	27.50	32.50
Fig. 0302, Flange End.....		12.00	13.50	16.50	19.50	23.00	28.00	31.50	36.50
Fig. 0303, Screw End, Steel Stem.....		17.50	19.00	22.00	25.00	30.00	37.00	42.00	48.00
Fig. 0303, Screw End, Brass Stem.....		19.00	20.50	23.50	27.00	32.50	40.00	45.00	52.00
Fig. 0304, Flange End, Steel Stem.....		19.50	21.00	24.50	27.50	34.00	41.00	46.00	52.00
Fig. 0304, Flange End, Brass Stem.....		21.00	22.50	26.00	29.50	36.50	44.00	49.00	56.00
SIZE	INCHES	7	8	9	10	12	14	16	
Fig. 0301, Screw End.....		45.00	54.00	76.00	90.00	125.00	.....	.....	.....
Fig. 0302, Flange End.....		49.00	58.00	81.00	95.00	133.00	181.00	260.00	.....
Fig. 0303, Screw End, Steel Stem.....		64.00	80.00	105.00	122.00	160.00	.....	.....	.....
Fig. 0303, Screw End, Brass Stem.....		69.00	86.00	113.00	131.00	172.00	.....	.....	.....
Fig. 0304, Flange End, Steel Stem.....		68.00	84.00	110.00	127.00	168.00	236.00	325.00	.....
Fig. 0304, Flange End, Brass Stem.....		73.00	90.00	118.00	136.00	180.00	255.00	350.00	.....

We furnish Bronze Spindles in O. S. & Y. Gates on all orders unless otherwise stated

For Detail Dimensions see Page 75

For Description see Page 72

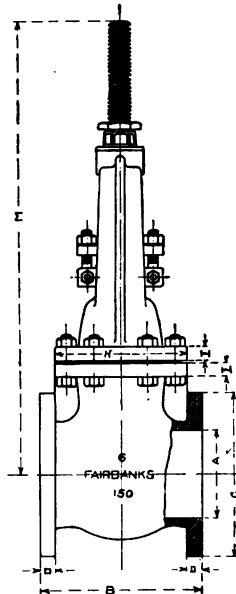
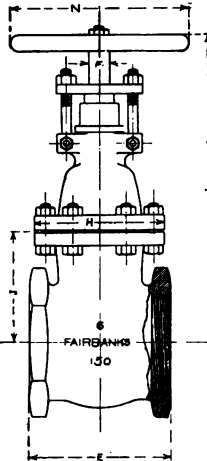
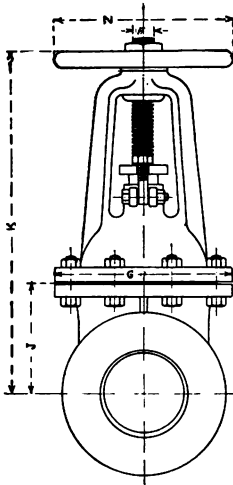
For Drilling see Page 156



# Fairbanks Iron Body Gate Valves

## Renewable Bronze Seat Rings

### Wedge Pattern Bronze Mounted



Figures 0301 and 0302

Figures 0303 and 0304

### DETAIL DIMENSIONS

SIZE	INCHES	A	2	2½	3	3½	4	4½	5	6	7	8	9	10	12	14	16
Face to Face, Flange End	B	6½	7⅞	8¾	9	9½	9¾	10½	10⅞	11	11½	12	12½	14	16	17½	
Diameter of Flanges....	C	6	7	7½	8½	9	9¾	10	11	12½	13½	15	16	19	21	23½	
Thickness of Flanges....	D	⅝	⅞	¾	⅞	⅞	⅞	⅞	1	1⅞	1½	1½	1⅞	1¼	1⅝	1⅞	
End to End, Screw End.	E	5¾	6	7½	8	8⅞	9	9¼	9½	10¾	11¼	12½	13¼	14½	.....	.....	
Diameter of Spindle....	F	¾	⅞	1	1½	1½	1½	1¼	1⅝	1⅝	1½	1½	1½	1⅝	1¾	2	
Length of Body and Bonnet Flange....	G	6⅞	7⅞	8	8⅞	9⅞	10⅞	11⅞	12	13¾	15	16⅞	17⅞	20¾	23½	25¾	
Width of Body and Bonnet Flange....	H	5⅞	5⅞	6⅞	7	7⅞	8	8⅞	8⅞	9⅞	10⅞	11⅞	11⅞	13¼	14¾	15⅞	
Thickness of Body and Bonnet Flange....	I	½	⅝	⅞	¾	¾	¾	⅞	⅞	⅞	⅞	⅞	⅞	1	1	1⅞	
Center of Port to Top of Body Flange....	J	4½	5⅞	5⅞	6	6	7	7½	7⅞	9½	10½	11½	12⅞	14¾	17¼	18½	
Center of Port to Top of Spindle—Rising Spindle—Closed....	K	12½	13⅞	14⅞	16⅞	17⅞	18⅞	21⅞	24¼	28	30¼	33¼	36	42¼	49⅞	56¼	
Center of Port to Top of Handwheel— Stationary Spindle..	L	12⅞	13⅞	14⅞	15¾	16⅞	18	20	21⅞	25⅞	26⅞	28⅞	30⅞	34⅞	39½	44⅞	
Center of Port to Top of Spindle—Rising Spindle—Open ....	M	15½	17½	18½	20⅞	22½	24¼	27¼	31¾	36½	39¼	43¾	46¾	56	65	73½	
Diameter of Handwheel.	N	6½	6½	7½	7½	9	9	10	10	12	14	14	16	18	20	22	

# Fairbanks Heavy Iron Body Gate Valves

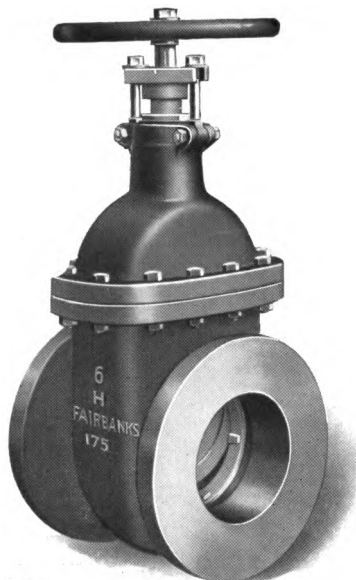
Renewable Bronze Seat Rings

Wedge Pattern

Bronze Mounted

500 Pounds Hydraulic Test Pressure

175 Pounds Steam Working Pressure    225 Pounds Water Working Pressure



## STATIONARY SPINDLE

Figure 0305—Screw End (Vent)

Figure 0306—Flange End (Ventilate)

## RISING SPINDLE

Figure 0307—Screw End (Venting)

Figure 0308—Flange End (Ventose)

Rising Spindle, Sizes 6 inches and smaller have Yoke Integral with Bonnet

## PRICE LIST

SIZE	INCHES	2	2½	3	3½	4	4½	5	6	7
Fig. 0305, Screw End.....		15.00	17.00	20.00	25.00	28.00	35.00	40.00	50.00	75.00
Fig. 0306, Flange End.....		17.50	19.50	23.00	28.00	33.00	40.00	45.00	57.00	82.00
Fig. 0307, Screw End.....		23.00	25.00	29.00	35.00	40.00	50.00	54.00	65.00	90.00
Fig. 0308, Flange End.....		25.50	27.50	32.00	38.00	45.00	55.00	59.00	72.00	97.00

SIZE	INCHES	8	9	10	12	14	16	18	20	24
Fig. 0305, Screw End.....		87.00	120.00	145.00	185.00	.....	.....	.....	.....	.....
Fig. 0306, Flange End.....		94.00	127.00	153.00	195.00	300.00	400.00	.....	.....	.....
Fig. 0307, Screw End.....		110.00	145.00	170.00	215.00	.....	.....	.....	.....	.....
Fig. 0308, Flange End.....		117.00	152.00	178.00	225.00	340.00	450.00	600.00	.....	.....

Bronze Spindles to 4½" inclusive, Steel Spindles 5" and above, in Stationary Spindle Type. Steel Spindles in O. S. & Y. Type. Bronze Spindles in O. S. & Y. Type at Special Prices.

For Detail Dimensions see Page 77

For Description see Page 72

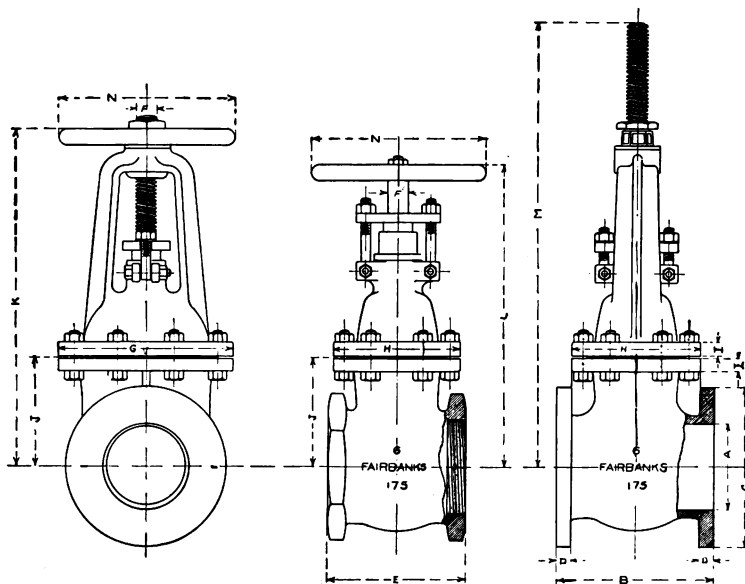
For Drilling see Page 157

# Fairbanks Heavy Iron Body Gate Valves

Renewable Bronze Seat Rings

Wedge Pattern

Bronze Mounted



Figures 0305 and 0306

Figures 0307 and 0308

## DETAIL DIMENSIONS

SIZE	INCHES	A	2	2 1/2	3	3 1/2	4	4 1/2	5	6	7	8	9	10	12	14	16	18
Face to Face, Flange End	B	7 1/2	8	9 1/2	10	10 1/2	11	11 1/2	12	12 1/2	13 1/2	14	15	16	18	19 1/2	21	
Diameter of Flanges...	C	6 1/2	7 1/2	8 3/4	9	10	10 1/2	11	12 1/2	14	15	16	17 1/2	20	22 1/2	25	27	
Thickness of Flanges...	D	3/8	1	1 1/8	1 3/8	1 1/2	1 5/8	1 3/4	1 7/8	1 1/2	1 5/8	1 3/4	1 7/8	2	2 1/8	2 1/4	2 3/8	
End to End, Screw End	E	6 1/2	6 3/4	8	8 1/2	9 1/2	9 3/4	10	10 1/2	11 3/8	12 1/4	13	14	16	...	...	...	
Diameter of Spindle...	F	3/4	7/8	1	1 1/8	1 1/8	1 1/8	1 1/4	1 3/8	1 3/8	1 1/2	1 1/2	1 1/2	1 1/2	1 3/8	1 3/4	2	2 1/8
Length of Body and Bonnet Flange...	G	6 11/16	7 3/8	8 7/16	9 3/16	10	10 3/4	11 1/8	13 3/16	14 1/2	15 5/8	16 15/16	18 3/8	21 5/8	24 1/2	26 3/4	29 3/8	
Width of Body and Bonnet Flange...	H	6	6 3/16	7 1/8	7 3/4	8 1/4	8 11/16	9 1/4	10 1/8	10 1/2	11 3/8	12 3/16	12 1/2	14 1/4	15 3/4	16 7/8	17 3/4	
Thickness of Body and Bonnet Flange...	I	5/8	1 1/16	3/4	1 1/8	1 1/8	7/8	1	1 1/8	1 1/4	1 1/4	1 1/4	1 1/4	1 3/8	1 3/8	1 7/8	1 1/2	
Center of Port to Top of Body Flange...	J	4 1/2	5 3/16	5 3/16	6	6 3/8	7	7 1/2	8 1/8	9 1/2	10 1/2	11 1/2	12 1/16	14 3/4	17 1/4	18 1/2	20 1/2	
Center of Port to Top of Spindle—Rising Spindle—Closed...	K	12 11/16	13 11/16	14 1/4	16 7/16	18 1/4	19 3/16	22	24 1/8	28 3/8	31	33 3/4	36 1/2	42 3/4	50 1/4	56 3/4	62 3/4	
Center of Port to Top of Handwheel—Stationary Spindle...	L	12 5/16	13 11/16	14 3/4	16 1/8	17 5/16	18 1/2	20 1/2	22 1/2	25 7/8	27 3/8	29 3/16	31 1/16	35 7/16	40	44 3/4	49 3/8	
Center of Port to Top of Spindle—Rising Spindle—Open...	M	15 11/16	17 1/16	18 5/8	21 1/16	23 3/8	24 7/8	28 1/8	31 5/8	36 7/8	40 1/2	44 1/4	47 3/8	56 1/2	65 3/8	74	82	
Diameter of Handwheel	N	6 1/2	6 1/2	7 1/2	7 1/2	9	9	10	10	12	14	14	16	18	20	22	22	

# Fairbanks Extra Heavy Iron Body Gate Valves

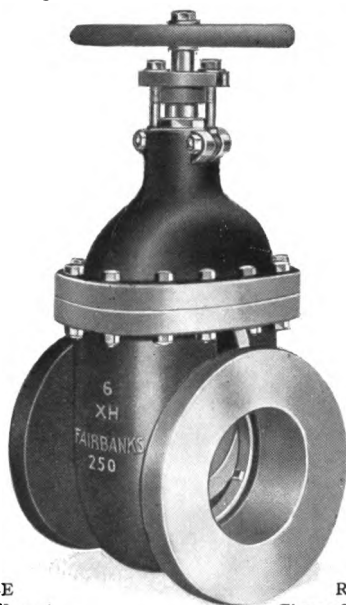
Renewable Bronze Seat Rings

Wedge Pattern

Bronze Mounted

800 Pounds Hydraulic Test Pressure

250 Pounds Steam Working Pressure 350 Pounds Water Working Pressure



## STATIONARY SPINDLE

Figure 0309—Screw End (Venus)

Figure 0310—Flange End (Venture)

## RISING SPINDLE

Figure 0311—Screw End (Venus)

Figure 0312—Flange End (Veracity)

Rising Spindle Sizes 6 inches and smaller have Yoke Integral with Bonnet

## PRICE LIST

SIZE	INCHES	2	2½	3	3½	4	4½	5	6	7
Fig. 0309, Screw End.....		27.50	33.00	45.00	57.00	60.00	77.00	85.00	100.00	125.00
Fig. 0310, Flange End.....		30.00	35.50	48.00	60.00	65.00	82.00	90.00	107.00	132.00
Fig. 0311, Screw End.....		35.50	41.00	54.00	67.00	72.00	92.00	100.00	115.00	140.00
Fig. 0312, Flange End.....		38.00	43.50	57.00	70.00	77.00	97.00	105.00	122.00	147.00
SIZE	INCHES	8	9	10	12	14	16	18	20	24
Fig. 0309, Screw End.....		155.00	225.00	250.00	.....	.....	.....	.....	.....	.....
Fig. 0310, Flange End.....		162.00	232.00	258.00	335.00	440.00	675.00	.....	.....	.....
Fig. 0311, Screw End.....		180.00	250.00	275.00	.....	.....	.....	.....	.....	.....
Fig. 0312, Flange End.....		187.00	257.00	283.00	390.00	510.00	750.00	.....	.....	.....

Bronze Spindles to 4½" inclusive, Steel Spindles 5" and above, in Stationary Spindle Type. Steel Spindle in O. S. & Y. Type. Bronze Spindles in O. S. & Y. Type at Special Prices.

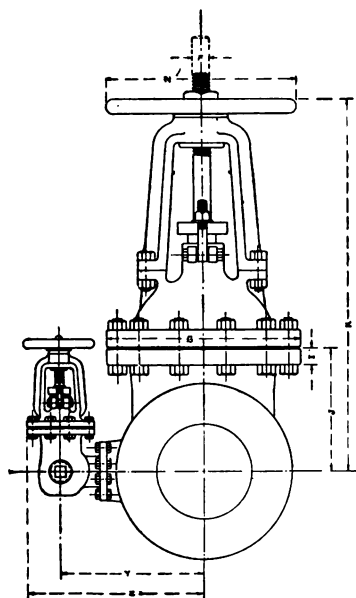
For Description see Page 72

For Detail Dimensions see Page 79

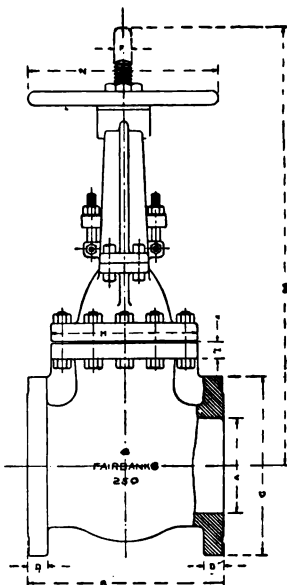
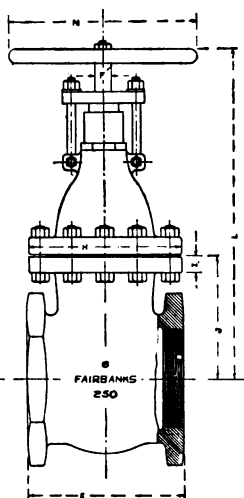
For Drilling see Page 157

# Fairbanks Extra Heavy Iron Body Gate Valves

Renewable Bronze Seat Rings  
Wedge Pattern Bronze Mounted



Figures 0309 and 0310



Figures 0311 and 0312

## DETAIL DIMENSIONS

SIZE	INCHES	A	2	2½	3	3½	4	4½	5	6	7	8	9	10	12	14	16	18	20	22	24
Face to Face, Flange End.....	B	8½	9½	11½	11½	12	13½	15	15½	16½	16½	17	18	19½	22½	24	26	28	29½	31	
Diameter of Flanges.....	C	6½	7½	8½	9	10	10½	11	12½	14	15	16	17½	20	22½	25	27	29½	31½	34	
Thickness of Flanges.....	D	¾	1	1½	1½	1½	1½	1½	1½	1½	1½	1½	1½	2	2½	2½	2½	2½	2½	2½	
End to End, Screw End.....	E	6¾	8	8½	9	9½	10	11	11½	12½	13½	14	15	17½	20	22½	25	27	29½	31½	
Diameter of Spindle.....	F	¾	¾	1	1½	1½	1½	1½	1½	1½	1½	1½	1½	2	2½	2½	2½	2½	2½	2½	
Length of Body and Bonnet Flange.....	G	7½	8½	8½	9½	10½	11½	12½	13½	15½	16½	17½	19½	22½	25½	27½	31	33	35½	38	
Width of Body and Bonnet Flange.....	H	6½	7½	7½	8½	9½	9½	10½	10½	11½	12½	12½	14	15½	16½	18	19½	20½	21½	22½	
Thickness of Body and Bonnet Flange.....	I	½	¾	¾	¾	¾	1	1½	1½	1½	1½	1½	1½	2	2½	2½	2½	2½	2½	2½	
Center of Port to Top of Body and Bonnet Flange.....	J	4½	5½	5½	6	6½	7½	7½	8½	9½	10½	11½	12½	14½	17½	18½	20½	22½	25	27½	
Center of Port to Top of Handwheel—Rising Spindle—Closed.....	K	13½	14½	15½	17½	19½	20½	22½	24½	28½	31½	34½	37½	43½	49½	56½	62½	69½	74½	80	
Center of Port to Top of Handwheel—Stationary Spindle.....	L	12½	14½	15½	17½	18½	19½	21½	23½	26½	28½	30½	31½	36½	41½	45½	50½	54½	58½	62	
Center of Port to Top of Spindle—Rising Spindle—Open.....	M	16	17½	19½	22½	24½	26½	28½	32½	37½	41½	44½	49	57½	66	75	83½	91½	98½	106½	
Diameter of Handwheel.....	N	6½	7½	9	10	12	12	14	16	16	18	18	20	22	24	24	26	28	30		
Size of By-pass Valve.....	O	.....	.....	.....	.....	.....	.....	1	1	1½	1½	1½	1½	2	2	3	3	3	4	4	
Approximate Distance Center of Valve to Center of By-pass.....	Y	.....	.....	.....	.....	.....	.....	9½	11½	12½	12½	13½	15½	17½	20½	23½	24½	26½			
Approximate Distance Center of Valve to Extreme Outside of By-pass.....	Z	.....	.....	.....	.....	.....	.....	10½	14½	15½	15½	16½	18½	20½	25½	27½	29½	31	33		

# Fairbanks Renewable Iron Body Gate Valves with By-pass

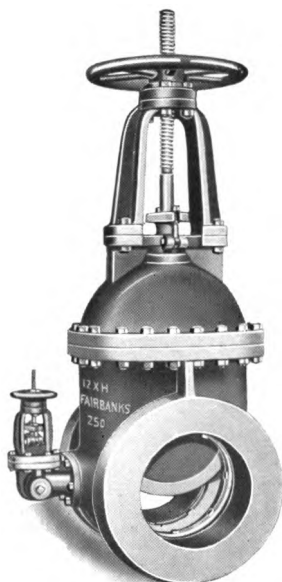


Figure 0313—Gate By-pass (Veranda)  
Figure 0314—Globe By-pass (Verb) See Note

## PRICE LIST

SIZE OF VALVE	INCHES	6	7	8	9	10	12	14	16	18	20	24
<b>HEAVY</b>												
Stationary Spindle		85.00	110.00	125.00	158.00	185.00	230.00	340.00	450.00	575.00	.....	.....
O. S. & Y .....		100.00	125.00	148.00	183.00	210.00	260.00	390.00	510.00	660.00	.....	.....
<b>EXTRA HEAVY</b>												
Stationary Spindle		155.00	180.00	215.00	285.00	310.00	400.00	510.00	750.00	.....	.....	.....
O. S. & Y .....		170.00	195.00	240.00	310.00	335.00	455.00	580.00	825.00	1,050.00	1,250.00	1,700.00

Above list Prices are for valves made with Gate By-passes. Steel Spindles in both Stationary Spindle and O. S. & Y. Types. Globe By-passes furnished when specified. See Illustration Page 73.

For Detail Dimensions see Page 79  
For Description see Page 72  
For Drilling see Page 157  
For Heavy Pressure see Page 76  
For Extra Heavy Pressures see Page 78

# Fairbanks Renewable Iron Body Gate Valves

Wedge Pattern

Seat Rings and Seat Ring Wrenches

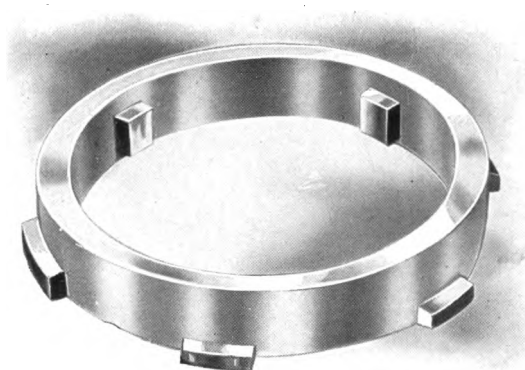


Figure 0315—(Verbal)



Figure 0316—(Verbatim)

## PRICE LIST

SIZE	INCHES	2	2 ½	3	3 ½	4	4 ½	5	6	7
Fig. 0315.....		.40	.60	.80	1.00	1.20	1.40	1.60	2.00	2.30
Fig. 0316.....		1.00	1.70	1.80	1.80	2.00	2.20	2.50	3.00	3.50
SIZE	INCHES	8	9	10	12	14	16	18	20	24
Fig. 0315.....		3.10	3.70	4.20	5.80	7.50	11.00	18.00	26.00	36.00
Fig. 0316.....		3.50	4.00	4.00	5.00	6.00	7.00	7.00	9.50	10.50

---

---

# Fairbanks Extra Heavy Gate Valve

## Wedge Pattern for Superheated Steam

On pages 84 and 85, we illustrate a new wedge pattern type of valve designed to overcome the many difficulties heretofore experienced by manufacturers in the efforts which have been made to produce a first-class valve for superheated steam.

Attention is called to the pleasing lines of this design, in which sharp angles are eliminated to avoid unnecessary strains at different points in the castings.

The seats in this type are made either integral with the valve body or as separate parts.

The separate seat rings are securely screwed into place and pinned into position by a special method. There is no danger of the ring loosening up in service.

We make the wedge of the solid type if desired, but we recommend and supply the compensating type unless otherwise specified.

The metal is properly graduated in thickness behind all flanges to secure uniform strength in the castings at every point.



---

---

The body, bonnet and wedges are made of the best grade of cast steel. The facing of the wedges is pure nickel and the seat rings are nickel steel. The spindle is of large diameter and made of steel containing not less than 23% nickel.

The stuffing box is removed to a considerable distance from the valve bonnet in order to preserve the packing from the effects of radiation at a high temperature. Its dimensions are unusually liberal, both as to width and depth; and, if the use of metallic packing is desired, it is machined to receive the same.

A ground joint is used between the body and the bonnet of the valve so that no gasket is required and this joint is held by exceptionally heavy bolts of high-grade steel. All bolt holes are spot faced to insure a perfect contact for the bolt heads or nuts.

For this class of work we recommend flanged joints, and supply smooth finished raised faces on the end flanges extending the full width inside of the bolt holes.

Engineers will value the advantage of our swing bolt style of stuffing box.

These valves are designed for a steam working pressure up to 250 pounds, superheat 200 degrees.

**For Illustrations see Pages 84 and 85**

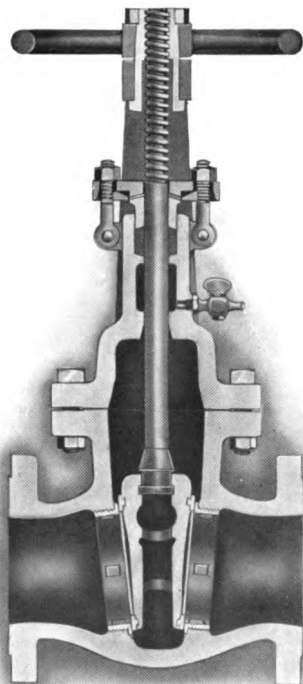
---

---

# Fairbanks Extra Heavy Gate Valve

**Solid Wedge Pattern for Superheated Steam**

800 Pounds Hydraulic Test Pressure    250 Pounds Steam Working Pressure



**SECTIONAL VIEW**  
**Showing Interior Parts**

**For Description see Pages 82 and 83**

# Fairbanks Extra Heavy Gate Valve

## Solid Wedge Pattern for Superheated Steam

800 Pounds Hydraulic Test Pressure 250 Pounds Steam Working Pressure

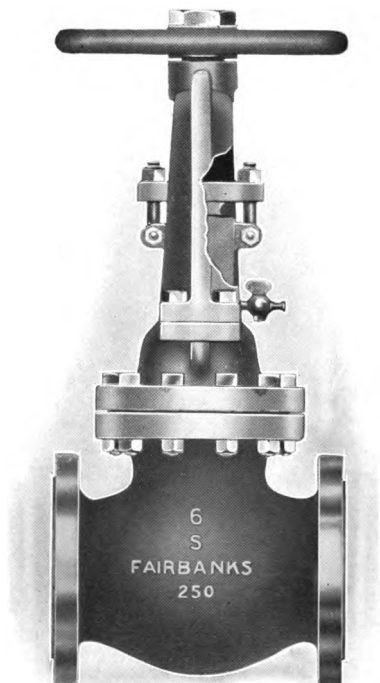
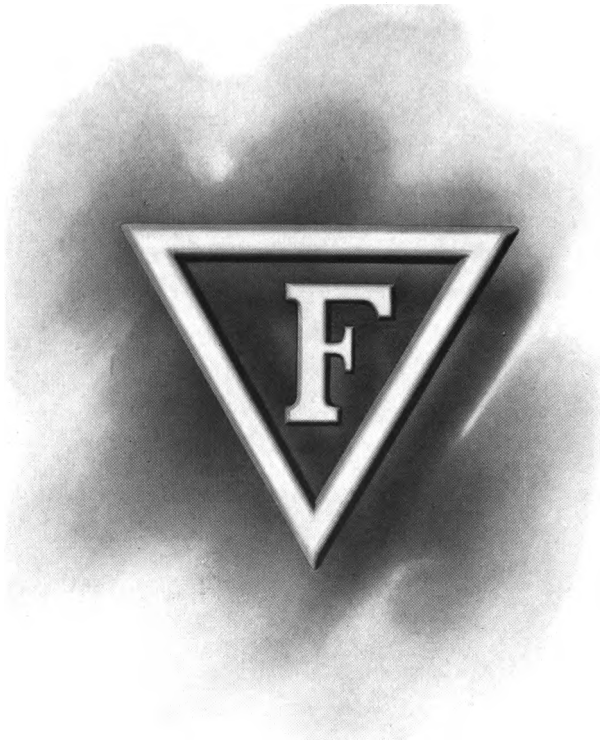


Figure 0317—(Verbena)

### PRICE LIST

SIZE	INCHES	2½	3	3½	4	4½	5	6	7	8	9	10	12
Fig. 0317.....		Prices on Receipt of Specifications											
Face to Face.....		9½	11⅛	11⅞	12	13¼	15	15⅞	16¼	16½	17	18	19¾
Diameter of Flange.....		7½	8½	9	10	10½	11	12½	14	15	16	17½	20

For Description see Pages 82 and 83



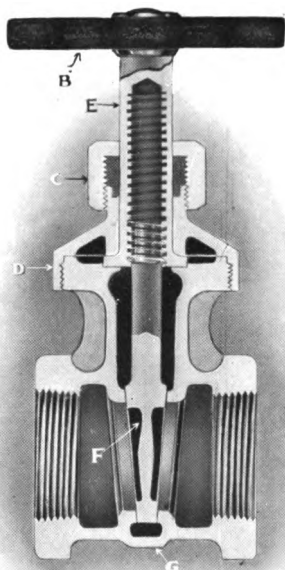
**Fairbanks “Standard”  
Brass and Iron Body  
Gate Valves**

---

---

# Fairbanks XL Standard Brass Gate Valves

PATENTED



**B**—Handwheel  
**C**—Packing Nut  
**D**—Bonnet or Hub

**E**—Spindle  
**F**—Wedge  
**G**—Body

In ordering parts, specify them by reference both to the names and to the descriptive letters.

We have departed from conventional lines to gain advantage of the constricted areas which make these valves more compact and of greater strength to resist pressure, water hammer and strains than other Standard Brass Gate Valve designs on the market.

XL Brass Gate Valves are well made of high-grade steam bronze. They are accurately machined, carefully inspected and subjected to hydraulic test.

We do not recommend them for more than 125 pounds steam working pressure.

# Fairbanks XL Standard Brass Gate Valves

PATENTED

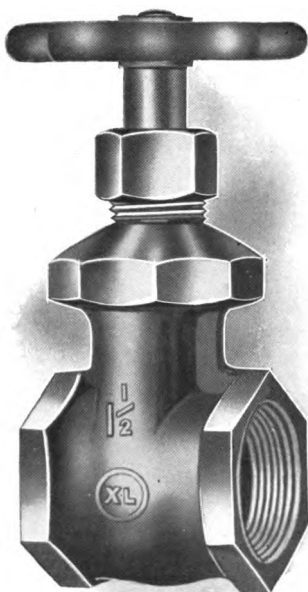


Figure 0401—(Verdancy)

## PRICE LIST

SIZE	INCHES	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$
Fig. 0401, Screw End .....		1.40	1.80	2.50	3.50	5.00	7.50	14.00
End to End.....		$1\frac{7}{8}$	$2\frac{1}{4}$	$2\frac{1}{2}$	$2\frac{7}{8}$	$3\frac{1}{8}$	$3\frac{3}{8}$	$3\frac{5}{8}$

---

---

# Fairbanks XL Standard Iron Body Gate Valves

## Bronze Mounted

## Solid Wedge Pattern

Our XL Iron Body Gate Valves, Solid Wedge Pattern, are designed for a steam working pressure of 125 pounds, and are tested to 300 pounds hydraulic pressure, with the valve closed.

The guides in the wedge and the ribs in the body are so finished and fitted as to insure true and easy movement and to prevent the wedge from touching seats in the body, except at point of closing.

The seats in the body and the faces of the wedge are made of high grade bronze.

All Inside Screw Valves have Bronze Stems. Our Standard Stock Valve of O. S. & Y. type is made with a stem of Rolled Navy Bronze, this being more suitable for general purposes than steel. We furnish the O. S. & Y. type of valve with steel stem on special orders only



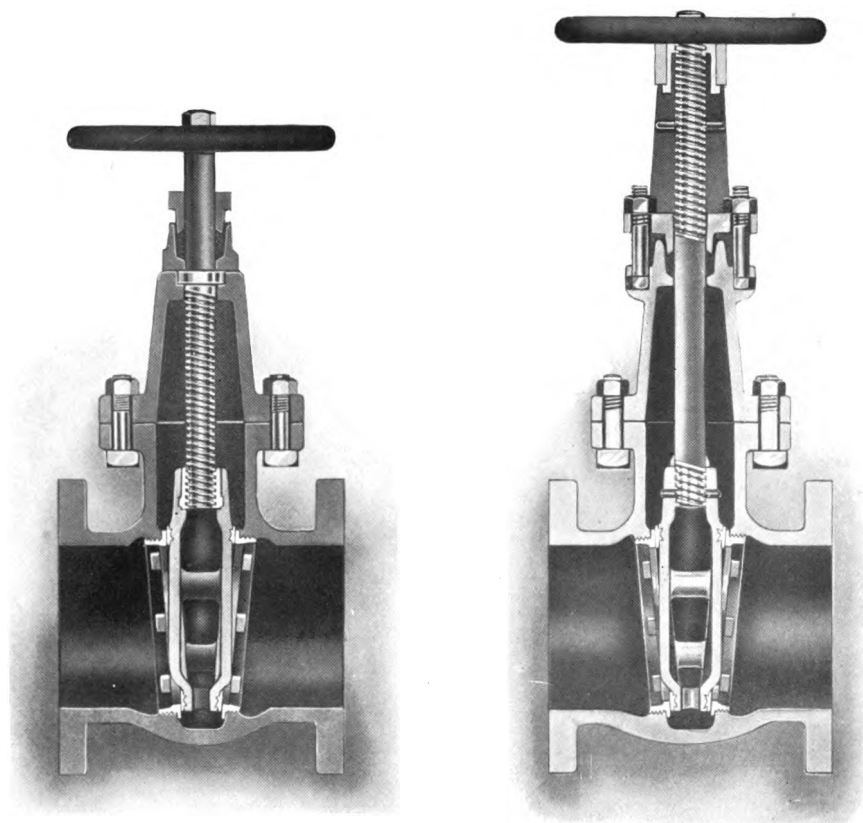
---

---

# Fairbanks XL Standard Iron Body Gate Valves

**Bronze Mounted**

**Solid Wedge Pattern**



**SECTIONAL VIEWS**  
**Showing Interior Parts**

# Fairbanks XL Standard Iron Body Gate Valves

Bronze Mounted

Solid Wedge Pattern

125 Pounds Steam or Water Working Pressure

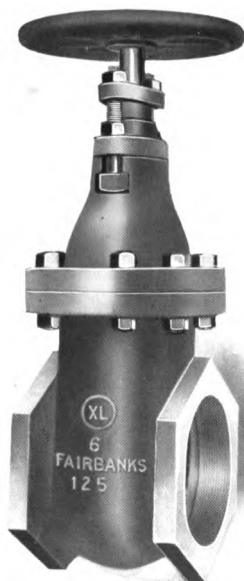


Figure 0402—Screw End (Verdant)



Figure 0403—Flange End (Verdict)

## PRICE LIST

SIZE	INCHES	2	2½	3	3½	4	4½	5	6	7	8	9	10	12
Fig. 0402, Screw End.		10.00	11.50	14.00	17.00	19.00	24.00	27.50	32.50	45.00	54.00	76.00	90.00	125.00
Fig. 0403, Flange End.		12.00	13.50	16.50	19.50	23.00	28.00	31.50	36.50	49.00	58.00	81.00	95.00	133.00

For Description see Page 90

For Detail Dimensions see Page 94

For Drilling see Page 156

# Fairbanks XL Standard Iron Body Gate Valves

Bronze Mounted

Solid Wedge Pattern

125 Pounds Steam or Water Working Pressure



Figure 0404—Screw End (Verdigris)

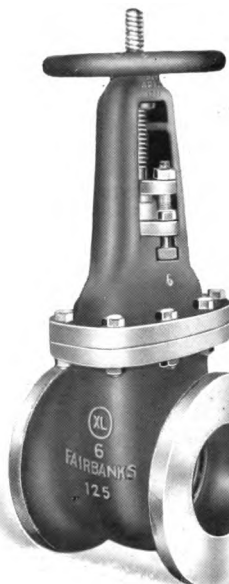


Figure 0405—Flange End (Verdure)

Sizes 6 inch and under have Yoke Integral with Bonnet

## PRICE LIST

SIZE	INCHES	2	2½	3	3½	4	4½	5	6	7	8	9	10	12
Fig. 0404, Screw End, Steel Stem..		17.50	19.00	22.00	25.00	30.00	37.00	42.00	48.00	64.00	80.00	105.00	122.00	160.00
Fig. 0404, Screw End, Bronze Stem		19.00	20.50	23.50	27.00	32.50	40.00	45.00	52.00	69.00	86.00	113.00	131.00	172.00
Fig. 0405, Flange End, Steel Stem..		19.50	21.00	24.50	27.50	34.00	41.00	46.00	52.00	68.00	84.00	110.00	127.00	168.00
Fig. 0405, Flange End, Bronze Stem		21.00	22.50	26.00	29.50	36.50	44.00	49.00	56.00	73.00	90.00	118.00	136.00	180.00

We furnish Valves with Brass Stem on all orders unless otherwise specified

For Description see Page 90

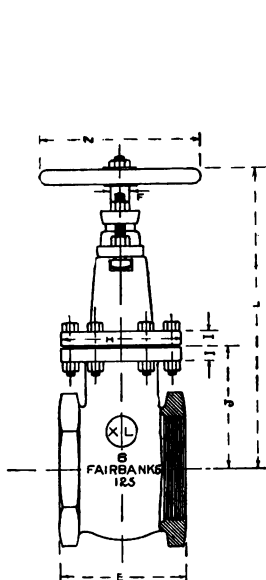
For Detail Dimensions see Page 94

For Drilling see Page 156

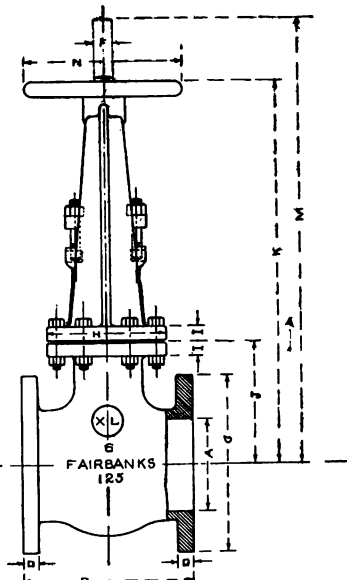
# Fairbanks XL Standard Iron Body Gate Valves

Bronze Mounted

Solid Wedge Pattern



Figures 0402 and 0403



Figures 0404 and 0405

## DETAIL DIMENSIONS

SIZE	INCHES	A	2	2½	3	3½	4	4½	5	6	7	8	10	12
Face to Face, Flange End. . .	B	7	7½	8	8½	9	9½	10	10½	11	11½	13	14	
Diameter of Flanges . . . . .	C	6	7	7½	8½	9	9¾	10	11	12½	13½	16	19	
Thickness of Flanges . . . . .	D	5/8	11/16	¾	13/16	15/16	13/16	15/16	1	1 1/16	1 1/8	1 3/16	1 1/4	
End to End, Screw End. . . . .	E	57/16	57/8	61/8	61½	67/8	7¼	75/16	7¾	8¾	811/16	97/8	115/8	
Diameter of Spindle . . . . .	F	¾	¾	7/8	7/8	1	1	1 1/8	1 1/8	1 1/4	1 1/8	1 9/16	1 9/16	
Diameter of Body and Bonnet Flange. . . . .	H	57/8	7	77/8	8½	9	95/8	10½	115/8	1211/16	137/8	165/8	193/8	
Thickness of Body and Bonnet Flange. . . . .	I	11/16	11/16	¾	13/16	7/8	7/8	7/8	15/16	1	1	1 3/16	1 3/16	
Center of Port to Top of Body Flange. . . . .	J	4¼	47/8	5¼	55/8	6	63/8	613/16	79/16	87/16	93/8	111/8	13	
Center of Port to Top of Spindle—Rising Spindle —Closed. . . . .	K	1015/16	12	135/8	1415/16	167/16	1715/16	1913/16	2211/16	265/16	293/16	351/8	411/16	
Center of Port to Top of Handwheel — Station- ary Spindle . . . . .	L	10	10¾	1213/16	135/8	151/16	15¾	171/8	1811/16	215/8	233/8	27¾	315/16	
Center of Port to Top of Spindle—Rising Spindle —Open. . . . .	M	13	15	167/8	18¾	20¾	2215/16	255/16	30¾	3313/16	3715/16	457/8	53¾	
Diameter of Handwheel. . . . .	N	6½	6½	7½	7½	9	9	10	10	12	14	16	18	

# Fairbanks XL Standard Iron Body Bell End Gate Valves

**Taper Seat**

**Double Wedge**

**Bronze Mounted**

300 Pounds Hydraulic Test Pressure

150 Pounds Water Working Pressure

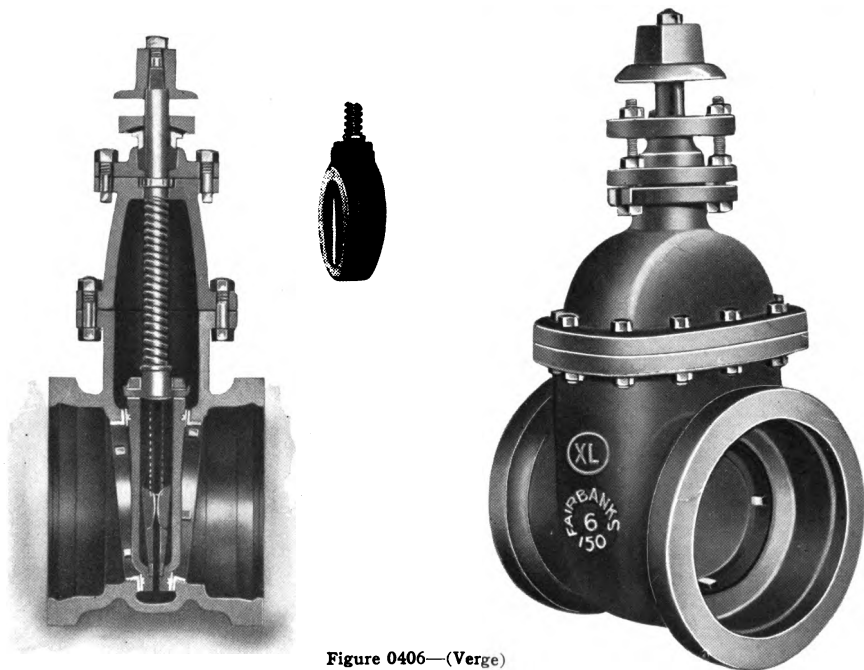


Figure 0406—(Verge)

Our XL Iron Body Bell End Gate Valves are tested to 300 pounds hydraulic pressure when closed.

The seats in the body and the faces of the wedge are made of high-grade bronze.

The double taper wedges are so guided that they cannot scrape against the valve seats. They align themselves to any required angle, are easily operated and cannot get out of order unless from abuse.

The pressure exerted on the discs by the screw and disc stem nut is distributed so that the valve is tight when closed..

## PRICE LIST

SIZE	INCHES	2	3	4	5	6	7	8	10	12
Fig. 0406, Bell End.....		10.00	14.00	19.00	27.50	32.50	45.00	54.00	90.00	125.00

Bell End and Flange End Valves suitable for high or low pressures,  
and Flange End Valves for exhaust steam and for gas,  
furnished in sizes 14" to 48" inclusive.

Prices on Application

For Detail Dimensions see Page 96

# Fairbanks XL Standard Iron Body Bell End Gate Valves

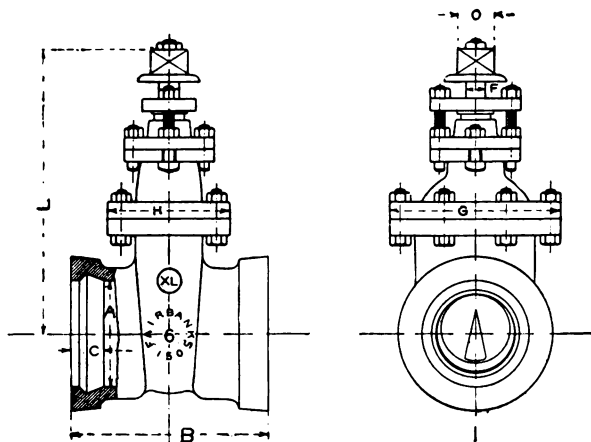


Figure 0406—(Verge)

## DETAIL DIMENSIONS

SIZE	INCHES	A	2	3	4	5	6	7	8	10	12
Face to Face.....	B	...	9¼	10¼	11¼	12¼	13¼	14¼	15¼	16¼	17¼
Depth of Bell.....	C	...	2¾	3½	4½	5½	6½	7½	8½	9½	10½
Diameter of Spindle.....	F	...	1	1	1½	1½	2	2	2½	2½	3
Length of Body and Bonnet Flange.....	G	...	8½	9	10½	11½	12½	13½	14½	15½	16½
Width of Body and Bonnet Flange.....	H	...	6½	6½	7½	7½	8½	8½	9½	9½	10½
Center of Port to Top of Nut.....	L	...	14¼	15¼	16¼	17¼	18¼	19¼	20¼	21¼	22¼
Flat to Flat of Spindle Nut.....	O	...	1½	1½	1½	1½	1½	1½	1½	1½	1½

Bell End and Flange End Valves suitable for high or low pressures, and  
Flange End Valves for exhaust steam and for gas, furnished in  
sizes 14" to 48" inclusive

Prices on Application

# Fairbanks XL Standard Iron Body Quick Opening Gate Valves

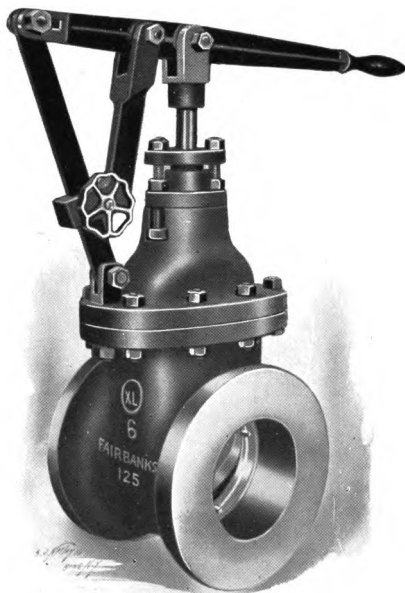


Figure 0407—Screw End (Verifier)  
Figure 0408—Flange End (Verity)

Our XL Standard Iron Body Quick-opening Gate Valves, Solid Wedge Pattern, are designed for a steam working pressure of 125 pounds and are tested to 300 pounds hydraulic pressure, with the valve closed.

The guides in the wedge and the ribs in the body are so finished and fitted as to insure true and easy movement, and to prevent the wedge from touching seats in the body, except at point of closing.

The seats in the body and the faces of the wedge are made of high-grade bronze.

The operating and locking device of this Quick-opening Valve is positive in action. It will hold the wedge and spindle in any desired position and cannot be jarred loose.

## PRICE LIST

SIZE	INCHES	2	2½	3	3½	4	4½	5	6	7	8
Fig. 0407, Screw End.....		17.50	19.00	22.00	25.00	30.00	37.00	42.00	48.00	64.00	80.00
Fig. 0408, Flange End.....		19.50	21.00	24.50	27.50	34.00	41.00	46.00	52.00	68.00	84.00

For Detail Dimensions see Page 98  
For Drilling see Page 156

# Fairbanks XL Standard Iron Body Quick Opening Gate Valves

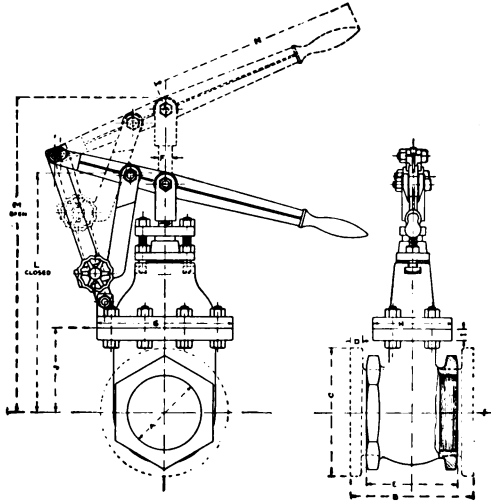


Figure 0407

Figure 0408

## DETAIL DIMENSIONS

SIZE	INCHES	A	2	2½	3	3½	4	4½	5	6	7	8	10	12
Face to Face, Flange End..	B	7	7½	8	8½	9	9½	10	10½	11	11½	12	13	14
Diameter of Flanges.....	C	6	7	7½	8½	9	9½	10	11	12½	13½	14	15	16
Thickness of Flanges.....	D	5/8	11/16	3/4	13/16	7/8	7/8	7/8	15/16	1	1	1	1	1
End to End, Screw End....	E	57/16	57/8	61/8	61/2	67/8	7¼	75/16	7¾	8¾	8¾	9¾	10¾	11¾
Diameter of Spindle.....	F	¾	¾	7/8	7/8	1	1	11/8	11/8	1¼	1¼	1½	1½	1½
Length of Body and Bon- net Flange.....	G	57/8	7	77/8	8½	9	95/8	10½	115/8	121/16	137/8	14	15	16
Width of Body and Bon- net Flange.....	H	47/8	5½	515/16	63/16	67/16	69/16	71/8	7½	77/8	8½	9	10	11
Thickness of Body and Bonnet Flange.....	I	11/16	11/16	¾	13/16	7/8	7/8	7/8	15/16	1	1	1	1	1
Center of Port to Top of Body Flange.....	J	4¼	47/8	5¼	55/8	6	63/8	613/16	79/16	87/16	93/8	10	11	12
Center of Port to Fulcrum —Closed.....	L	111/8	12½	14¾	161/8	16¼	177/8	195/16	2013/16	243/16	271/8	29	31	33
Center of Port to Fulcrum —Open.....	M	133/8	153/8	181/8	197/8	20¾	225/8	2411/16	273/16	3111/16	355/8	39	43	47
Fulcrum to End of Handle..	N	8	10	10	12	12	16	16	18	24	24	24	24	24



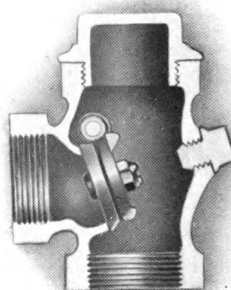
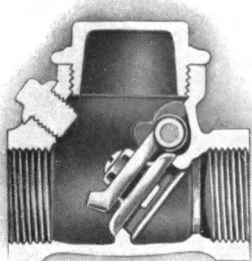
**Fairbanks  
Brass and Iron Body  
Check Valves**

---

---

# Fairbanks Brass Straightway and Angle Swing Check Valves

## Brass Disc



Our well-known Straightway Swing Check Valves, with Patent Rotating Disc, work freely, never sticking on the seat. They have full area, equal to pipe connections, and straightway passage; are thoroughly tested and reliable.

The valve is easily reground by removing angle plug (shown in cut,) inserting a screwdriver into slot in disc head and revolving it sufficiently to re-seat it, without disconnecting from the pipe.

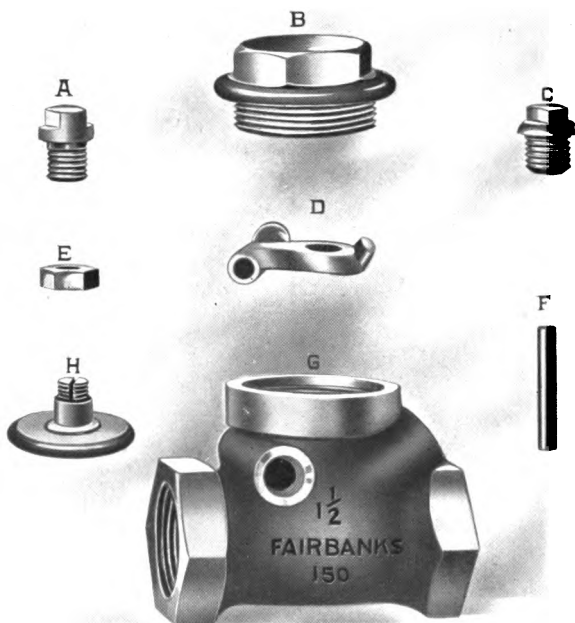
---

---

# Fairbanks Brass Straightway Swing Check Valves

Brass Disc

PARTS



A-Side Plug  
B-Cap  
C-Angle Plug  
D-Arm

E-Disc Stem Nut  
F-Hinge Pin  
G-Body  
H-Disc

In ordering parts, specify them by reference both to the names  
and to the descriptive letters

---

---

# Fairbanks Brass Straightway and Angle Swing Check Valves

300 Pounds Hydraulic Test Pressure

150 Pounds Steam Working Pressure    175 Pounds Water Working Pressure

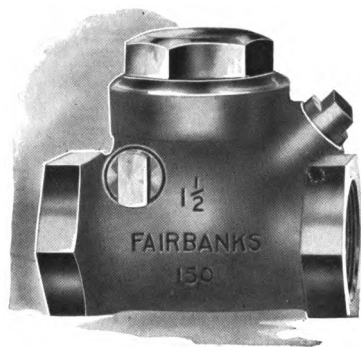


Figure 0601—(Vermes)



Figure 0602—(Vermuth)

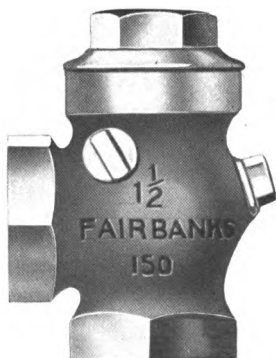


Figure 0603—(Vernal)



Figure 0604—(Vernation)

For Description see Page 100  
For Price List see Page 103  
For Detail Dimensions see Page 103

# Fairbanks Brass Straightway and Angle Swing Check Valves

## PRICE LIST

Figures 0601 and 0602

Figures 0603 and 0604

SIZE	INCHES	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Fig. 0601, Screw End.....		1.25	1.30	1.50	1.75	2.25	3.25	4.25	6.25	12.00	20.00
Fig. 0603, Screw End.....		.....	.....	1.50	1.75	2.25	3.25	4.25	6.25	12.00	20.00
Fig. 0602, Flange End.....		.....	.....	5.25	5.75	6.25	7.85	10.25	15.50	25.00	32.50
Fig. 0604, Flange End....		.....	.....	5.25	5.75	6.25	7.85	10.25	15.50	25.00	32.50

## DETAIL DIMENSIONS

Figures 0601 and 0602

Figures 0603 and 0604

SIZE	INCHES	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Fig. 0601, End to End.....		$2\frac{1}{8}$	$2\frac{1}{2}$	$2\frac{1}{2}$	$2\frac{5}{16}$	$3\frac{3}{8}$	$3\frac{3}{16}$	$4\frac{1}{4}$	$5\frac{1}{8}$	$6\frac{7}{8}$	$7\frac{1}{2}$
Fig. 0603, Center to End, Inlet or Outlet.....		.....	.....	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{5}{8}$	$1\frac{7}{8}$	$2\frac{1}{8}$	$2\frac{3}{4}$	$3\frac{5}{16}$	$3\frac{3}{4}$
Fig. 0602, Face to Face.....		.....	.....	.....	.....	5	$5\frac{5}{8}$	$6\frac{1}{2}$	$6\frac{5}{8}$	$7\frac{1}{4}$	$8\frac{1}{4}$
Fig. 0604, Center to Face, Inlet or Outlet.....		.....	.....	.....	.....	$2\frac{1}{2}$	$2\frac{3}{4}$	3	$3\frac{5}{8}$	$4\frac{1}{4}$	$4\frac{1}{2}$
Diameter of Flanges.....		.....	.....	.....	.....	4	$4\frac{1}{2}$	5	6	7	8
Thickness of Flanges.....		.....	.....	.....	.....	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{5}{8}$

# Fairbanks Brass Straightway Swing Check Valves

## Heavy Pattern

450 Pounds Hydraulic Test Pressure

175 Pounds Steam Working Pressure    225 Pounds Water Working Pressure

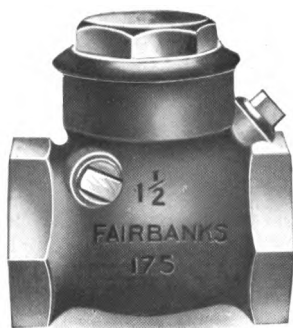


Figure 0605—(Veronica)

## PRICE LIST

SIZE	INCHES	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Fig. 0605, Screw End.....		2.60	2.60	2.60	3.00	4.00	5.75	7.50	11.00
End to End.....		$2\frac{5}{8}$	$2\frac{5}{8}$	$2\frac{5}{8}$	$3\frac{1}{8}$	$3\frac{5}{8}$	4	$4\frac{3}{8}$	$5\frac{3}{8}$

For Description see Page 100

# Fairbanks Brass Straightway Swing Check Valves

## Extra Heavy Pattern

800 Pounds Hydraulic Test Pressure

250 Pounds Steam Working Pressure    350 Pounds Water Working Pressure

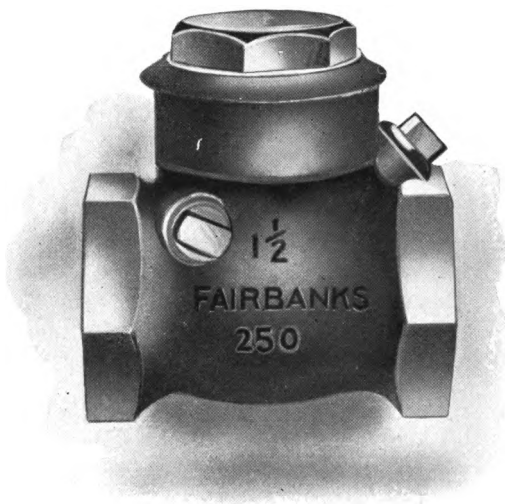


Figure 0606—(Versal)

### PRICE LIST

SIZE	INCHES	1/2	3/4	1	1 1/4	1 1/2	2
Fig. 0606, Screw End.....		5.00	5.85	7.50	10.85	14.20	20.75
End to End.....		2 3/8	3 7/8	3 3/4	4 3/8	4 7/8	5 7/8

For Description see Page 100

# Fairbanks Standard Horizontal Brass Check Valves

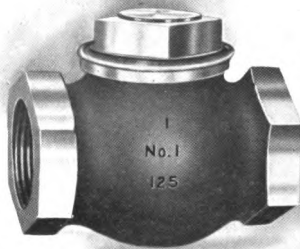
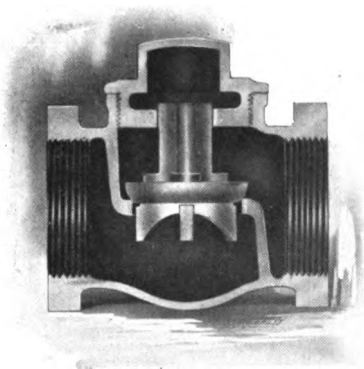


Figure 0607—(Versant)

Fairbanks Standard Horizontal Brass Check Valves are well proportioned, of good weight and made of high-grade steam bronze. They are accurately machined and carefully inspected.

Each valve is subjected to hydraulic test and will be found suitable for service requirements demanded of this class of valve.

We do not recommend them for more than 125 pounds steam working pressure.

## PRICE LIST

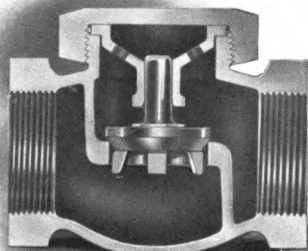
SIZE	INCHES	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Fig. 0607, Screw End.....		.90	1.15	1.60	2.25	3.15	4.75
End to End.....		$2\frac{1}{8}$	$2\frac{5}{8}$	$3\frac{3}{16}$	$3\frac{5}{8}$	$4\frac{1}{16}$	$5\frac{1}{16}$



# Fairbanks Regrinding Brass Check Valves

## Globe, Angle and Vertical Patterns

For Working Pressures up to 300 Pounds



### GLOBE PATTERN

For 200 Pounds Working Pressure

Figure 0608—Screw End (Versatile)

For 300 Pounds Working Pressure

Figure 0609—Screw End (Verse)



### ANGLE PATTERN

For 200 Pounds Working Pressure

Figure 0610—Screw End (Versed)

For 300 Pounds Working Pressure

Figure 0611—Screw End (Verser)

### VERTICAL PATTERN

(Not Illustrated)

For 200 Pounds Working Pressure

Figure 0612—Screw End (Versicle)

For 300 Pounds Working Pressure

Figure 0613—Screw End (Versicolor)

The design, high-class workmanship and durability of Fairbanks Regrinding Brass Check Valves demonstrate their superiority.

The life of a check valve is usually short, owing to the continuous pounding of the disc upon its seat. We have overcome this trouble by distributing the metal in the disc so that the weight is reduced without sacrificing its strength.

### PRICE LIST

SIZE	INCHES	1/2	3/4	1	1 1/4	1 1/2	2
Fig. 0608, Screw End, Globe Pattern, 200 Pounds		.85	1.15	1.55	2.30	3.25	5.20
Fig. 0609, Screw End, Globe Pattern, 300 Pounds		1.00	1.70	2.80	3.90	5.50	8.90
Fig. 0610, Screw End, Angle Pattern, 200 Pounds		.85	1.15	1.55	2.30	3.25	5.20
Fig. 0611, Screw End, Angle Pattern, 300 Pounds		1.00	1.70	2.80	3.90	5.50	8.90
Fig. 0612, Screw End, Vertical Pattern, 200 Pounds		.85	1.15	1.55	2.30	3.25	5.20
Fig. 0613, Screw End, Vertical Pattern, 300 Pounds		1.00	1.70	2.80	3.90	5.50	8.90

# Fairbanks Iron Body Straightway Swing Check Valves

**Bronze Mounted**

300 Pounds Hydraulic Test Pressure

125 Pounds Steam Working Pressure    150 Pounds Water Working Pressure



**Figure 0701—(Versify)**



**Figure 0702—(Versifier)**



**Figure 0703—(Version)**

## PRICE LIST

SIZE	INCHES	2	2½	3	3½	4	5
Figs. 0701, 0702 and 0703.....		6.25	10.00	12.00	16.00	18.00	25.00
SIZE	INCHES	6	7	8	10	12	....
Figs. 0701, 0702 and 0703.....		32.00	41.00	50.00	104.00	152.00	....

Angle Plug omitted in Sizes above 6 inches

Price for Sizes above 12 inches on Application

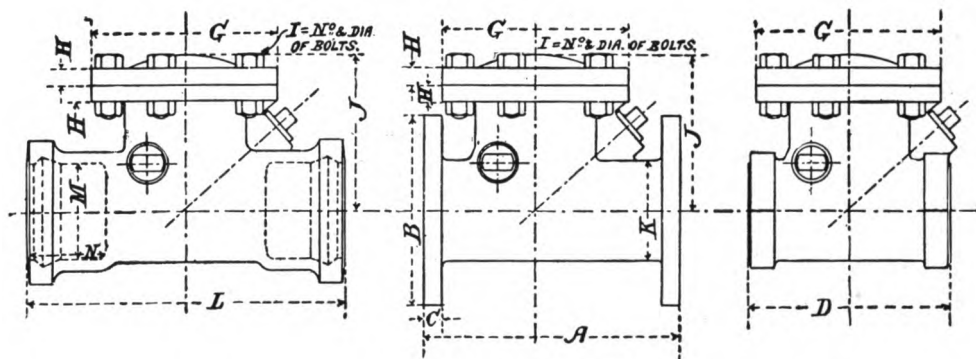
For Description see Page 100

For Detail Dimensions see Page 109

For Drilling see Page 156

# Fairbanks Iron Body Straightway Swing Check Valves

Bronze Mounted



Figures 0701, 0702 and 0703

## DETAIL DIMENSIONS

SIZE	INCHES	2	2½	3	3½	4	5	6	7	8	10	12	14	16	18	20	24
A—Face to Face, Flange End		8¾	9½	10¼	12	12½	13½	15	16½	18	20¼	22½	25	27½	30½	32½	38
B—Diameter of End Flanges		6	7	7½	8½	9	10	11	12½	13½	16	19	21	23½	25	27½	32
C—Thickness of End Flanges		⅝	⅞	¾	⅞	⅞	1	1⅛	1⅛	1⅛	1¼	1⅝	1⅝	1⅝	1⅞	1⅞	1⅞
D—End to End, Screw End		6¼	7½	8¾	9¾	10	12	14	15	16½	18¾	21½	.....	.....	.....	.....	.....
G—Diameter of Body and Cap Flange		6¼	6⅞	7¾	8¼	8¾	10½	11¾	12¾	14¼	16¾	19¾	21¼	24	26¼	29¼	34
H—Thickness of Body and Cap Flange		½	⅝	⅝	⅞	⅞	⅞	¾	⅞	1	1⅛	1⅛	1¼	1⅝	1⅝	1⅞	1⅞
I—Number and Size of Bolts in Body and Cap Flange		5 ½	5 ½	5 ½	6 ½	6 ½	6 ¾	6 ¾	6 ¾	8 ¾	8 ¾	10 ¾	14 ¾	18 ¾	20 ¾	24 ¾	30 ¾
J—Center to Top of Cap		4⅞	5¾	6⅞	7⅞	7⅞	8⅞	9⅞	10⅞	12⅞	14⅞	16¼	18	20¼	21⅞	24¼	29¼
K—Diameter Behind End Flange		3⅞	3¾	4¼	5	5¾	6½	7⅞	8¾	9¾	12¼	14¾	15⅝	17⅞	20⅞	22¾	26⅞
L—End to End, Bell Ends		9¾	.....	12¼	.....	15¾	17¼	18¾	19¼	20	22¼	24¼	26¾	29	31½	33¾	40½
M—Inside Diameter of Bells		3⅞	.....	4⅝	.....	5⅝	7	7⅞	9	10	12¼	14¼	16¾	18¾	20¾	22¾	26⅞
N—Depth of Bells		2¾	.....	2¾	.....	3½	3½	3½	3½	4	4	4	4	4	4	4	4

# Fairbanks Extra Heavy Iron Body Straightway Swing Check Valves

**Bronze Mounted**

600 Pounds Hydraulic Test Pressure

250 Pounds Steam Working Pressure    350 Pounds Water Working Pressure



**Figure 0704—(Versus)**



**Figure 0705—(Vert)**

## PRICE LIST

SIZE	INCHES	2	2½	3	3½	4	5	6	7	8	10	12
Fig. 0704, Screw End .		26.00	33.00	37.00	42.00	46.00	61.00	75.00	95.00	114.00	190.00	.....
Fig. 0705, Flange End		27.50	35.00	40.00	45.00	50.00	65.00	80.00	100.00	120.00	200.00	300.00
Fig. 0704, End to End	10	10¾	11½	12½	14	15⅛	16½	19	20	24	27½	
Fig. 0705, Face to Face	11	12½	13	14	15½	17½	19	21	23	26½	30	
Diameter of Flanges . .	6½	7½	8¼	9	10	11	12½	14	15	17½	20	

For Drilling see Page 157

# Fairbanks Iron Body Straightway Swing Check Valves

## DISCS

Working Pressures up to 150 Pounds



Figure 0706—(Vertebra)



Figure 0707—(Vertex)



Figure 0708—(Vervain)



Figure 0709—(Vervels)

## PRICE LIST

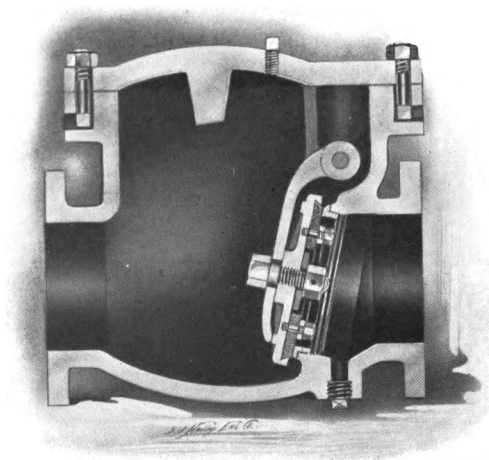
SIZE	INCHES	2	2½	3	3½	4	5	6
Fig. 0706, Ground Brass.....		.45	.50	.60	.75	1.15	1.35	2.00
Fig. 0707, Vulcabeston Ring.....		.90	1.30	1.50	2.40	2.65	3.10	3.75
Fig. 0708, Leather Ring.....		.90	1.30	1.50	2.40	2.65	3.10	3.75
SIZE	INCHES	7	8	10	12	14	16	
Fig. 0706, Ground Brass.....		3.00						
Fig. 0707, Vulcabeston Ring.....		4.50	6.00	9.00	12.50			
Fig. 0708, Leather Ring.....		4.50	6.00	9.00	12.50			
Fig. 0709, Iron Holder, Brass Ring.....			5.50	8.00	16.50	30.00	36.00	

---

---

# Fairbanks "Special" Check Valve

For Fire Service Connection



The Insurance Companies and Superintendents of Water Works have been working to perfect a Fire Service Connection which will prevent the raw water, from driven wells or other sources, from entering into the pipes and contaminating the filtered water when the public supply is used as an auxiliary to the system of fire protection.

They have specified a Check Valve, special in design, to embody bronze mounting, liberal clearances, rubber-faced clapper, etc., with a view to insuring perfect closing action and freedom from corrosion.

The Fairbanks "Special" Check Valve covers these features and is approved by the Insurance Companies.

We call your attention to the sketch of Fire Service Connection shown on page 114. Such connections, when supplied with the Fairbanks "Special" Check Valves and Post Indicator Gates, will fill requirements.

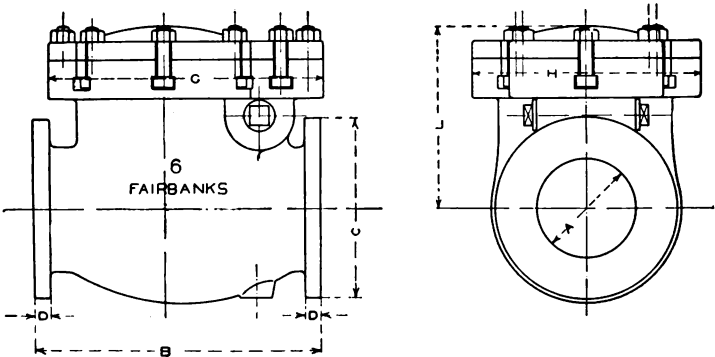
# Fairbanks “Special” Check Valve

For Fire Service Connection



Figure 0710—(Vespers)

SIZE	INCHES	6	8	10	12
Fig. 0710.....		80.00	140.00	200.00	300.00



SIZE	INCHES	A	6	8	10	12
Face to Face, Flange End.....	B		18	20 $\frac{3}{4}$	23 $\frac{5}{8}$	27
Diameter of Flanges.....	C		11	13 $\frac{1}{2}$	16	19
Thickness of Flanges.....	D		1	1 $\frac{1}{8}$	1 $\frac{3}{16}$	1 $\frac{1}{4}$
Length of Cap Flange.....	G		16 $\frac{3}{4}$	19	21 $\frac{5}{8}$	25 $\frac{1}{4}$
Width of Cap Flange.....	H		14	16 $\frac{3}{4}$	19 $\frac{1}{8}$	22 $\frac{1}{2}$
Center of Port to Top of Cap.....	L		11 $\frac{1}{8}$	13 $\frac{1}{8}$	14 $\frac{1}{2}$	16 $\frac{3}{4}$

# Fairbanks "Special" Check Valves

## For Fire Service Connection

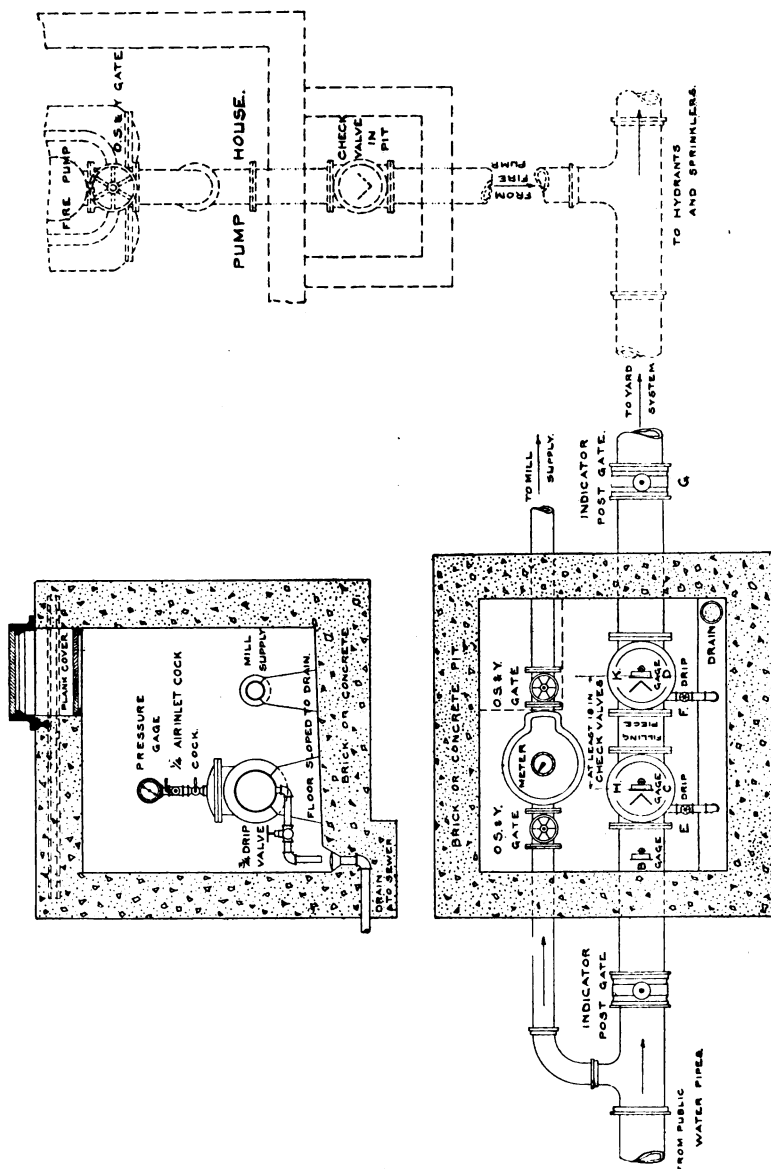


Diagram showing method of installing Fairbanks "Special" Check and Indicator Post Gate Valves in fire service connection



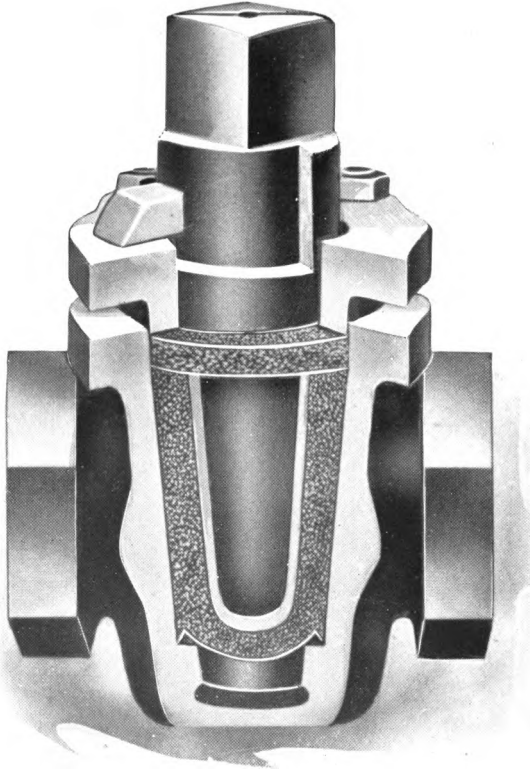
**Fairbanks**  
**Brass and Iron Cocks**  
**Asbestos Packed**  
**“SpherO” Ball Valves**  
**Dart Unions**

---

---

# Fairbanks Brass and Iron Cocks

## Vulcanized Asbestos Packed



The above illustrates an Asbestos Packed Cock with a section of the body removed, in order that the plug and packing may be shown.

The dovetailed U-shaped grooves in the body are packed with prepared asbestos, and a vulcabeston ring is used on the shoulder of the plug for top packing.

The plug is of standard taper, carefully finished, and barffed to render it rustless. It has no metallic bearing, coming in contact only with asbestos, the elasticity of which compensates for the differential expansion and contraction of the plug and body.

We recommend them where ground plug cocks are unsatisfactory and where globe, angle or gate valves fail. They are also successfully used for hydraulics, gas, acid, oil and air.

Experience shows that it is best to use an Asbestos Packed Cock to its full capacity, wide open, rather than partially open.

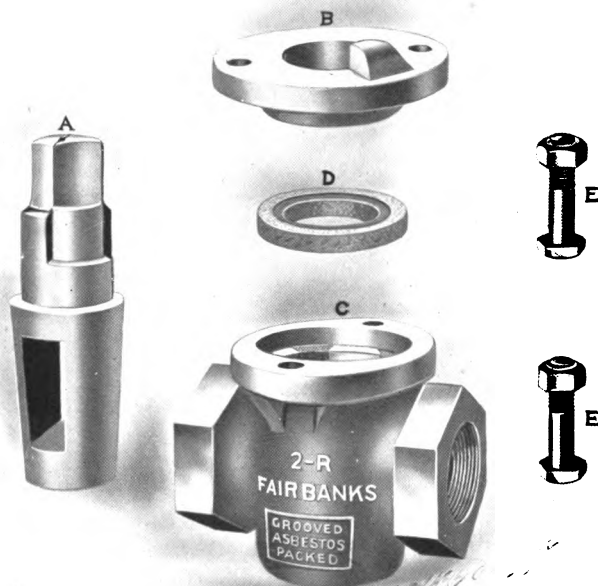
---

---

# Fairbanks Brass and Iron Cocks

Vulcanized Asbestos Packed

## PARTS



A-Plug  
B-Gland

D-Top Ring  
E-Gland Bolts

C-Body

In ordering parts, specify them by reference both to the names  
and to the descriptive letters

# Fairbanks Brass Cocks

## Vulcanized Asbestos Packed

400 Pounds Hydraulic Test Pressure

150 Pounds Steam Working Pressure    200 Pounds Water Working Pressure

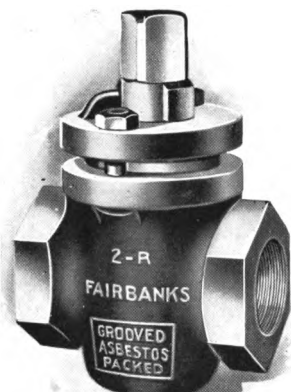


Figure 0801—(Vespiary)



Figure 0802—(Vessel)

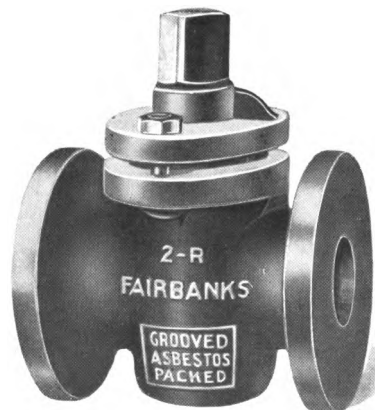


Figure 0803—(Vest)

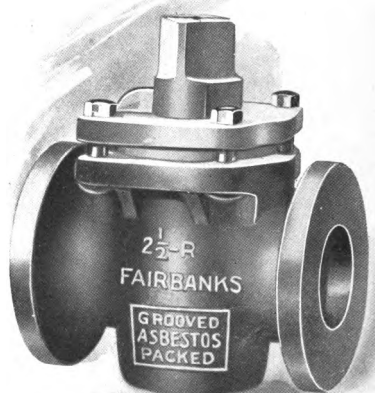


Figure 0804—(Vesta)

### PRICE LIST

SIZE	INCHES	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4
Fig. 0801, Screw End...		3.35	3.35	3.35	4.20	5.60	8.00	10.35	16.00	26.50	37.50	50.50	64.00
Fig. 0802, Screw End...		.....	.....	.....	.....	10.50	12.50	14.50	26.00	.....	.....	.....	.....
Fig. 0803, Flange End...		.....	.....	.....	.....	.....	.....	.....	.....	38.00	49.00	69.50	90.00
Fig. 0804, Flange End...		.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

For Description see Page 116

For Detail Dimensions see Page 127

For Drilling see Page 156

# Fairbanks Iron Cocks

## Vulcanized Asbestos Packed

300 Pounds Hydraulic Test Pressure

125 Pounds Steam Working Pressure 150 Pounds Water Working Pressure



Figure 0805—(Vestal)



Figure 0806—(Vested)

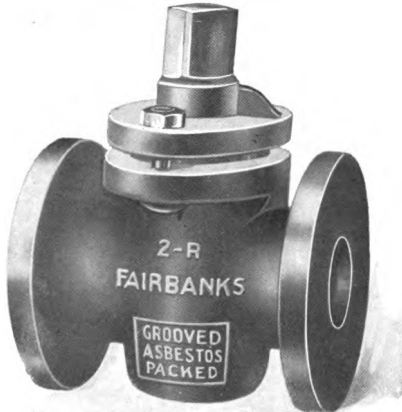


Figure 0807—(Vestary)

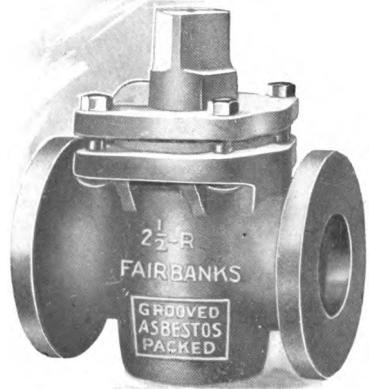


Figure 0808—(Vestibule)

### PRICE LIST

SIZE	INCHES	1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2
Fig. 0805, Screw End.....		1.30	1.30	1.45	1.60	2.10	2.50	3.50	4.75	7.00
Fig. 0807, Flange End.....							2.50	3.50	4.75	7.00
SIZE	INCHES	2 1/2	3	3 1/2	4	5	6			
Fig. 0806, Screw End.....		12.00	18.00	27.00	30.00	45.00	60.00			
Fig. 0808, Flange End.....										

For Description see Page 116

For Detail Dimensions see Page 127

For Drilling see Page 156

# Fairbanks Heavy Iron Cocks

**Vulcanized Asbestos Packed**

450 Pounds Hydraulic Test Pressure

175 Pounds Steam Working Pressure    225 Pounds Water Working Pressure

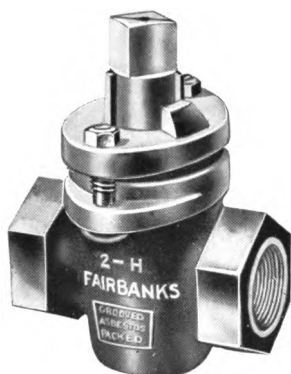


Figure 0809—(Vestige)

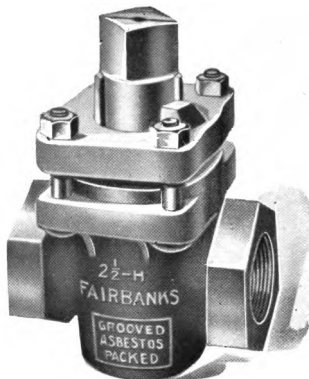


Figure 0810—(Vestment)

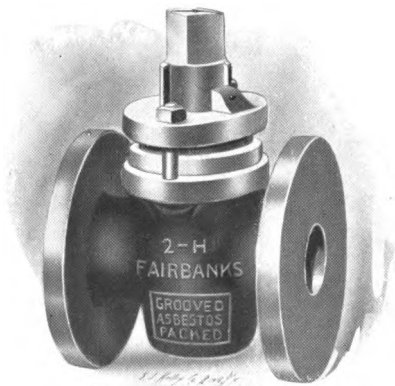


Figure 0811—(Vestry)

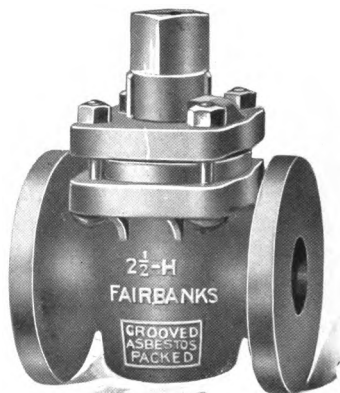


Figure 0812—(Vesture)

## PRICE LIST

SIZE	INCHES	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2
Fig. 0809, Screw End.....		1.50	1.75	2.00	2.50	3.00	4.25	5.75	8.50
Fig. 0811, Flange End.....						3.00	4.25	5.75	8.50
SIZE	INCHES	2 1/2		3		3 1/2		4	
Fig. 0810, Screw End.....		14.50		21.50		32.50		36.00	
Fig. 0812, Flange End.....									

For Description see Page 116

For Detail Dimensions see Page 127

For Drilling see Page 157

# Fairbanks Extra Heavy Iron Cocks

## Vulcanized Asbestos Packed

600 Pounds Hydraulic Test Pressure

250 Pounds Steam Working Pressure    350 Pounds Water Working Pressure



Figure 0813—(Vetch)

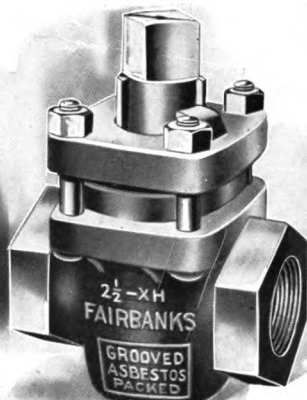


Figure 0814—(Vetchling)

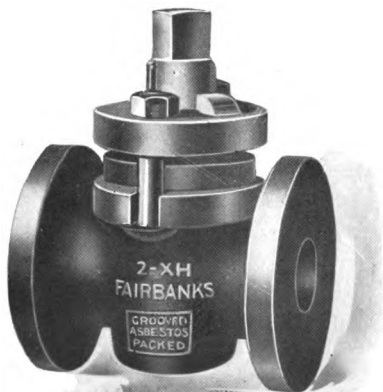


Figure 0815—(Vetchy)

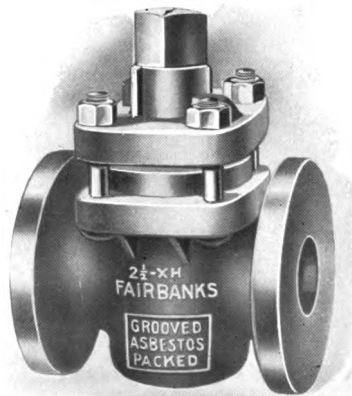


Figure 0816—(Veteran)

### PRICE LIST

SIZE	INCHES	1/2	3/4	1	1 1/4	1 1/2	2
Fig. 0813, Screw End .....		2.40	3.00	3.50	5.00	6.75	10.00
Fig. 0815, Flange End .....				3.50	5.00	6.75	10.00
SIZE	INCHES	2 1/2	3	3 1/2	4		
Fig. 0814, Screw End .....		17.00	26.00	38.00	42.00		
Fig. 0816, Flange End .....							

For Description see Page 116

For Detail Dimensions see Page 127

For Drilling see Page 157

# Fairbanks Iron Cocks

Vulcanized Asbestos Packed

Worm Gear Attachment



Regular—Figure 0817—(Veto)

Heavy—Figure 0818—(Vex)

Extra Heavy—Figure 0819—(Vexation)

	Hydraulic Test Pressure	Working Pressure
Regular	300 Pounds Water	125 Pounds Steam
Heavy	450 Pounds Water	175 Pounds Steam
Extra Heavy	600 Pounds Water	250 Pounds Steam

## PRICE LIST

SIZE	INCHES	2½	3	3½	4	5	6	8
Fig. 0817, Flange End.....		25.00	30.00	35.00	45.00	65.00	75.00	200.00
Fig. 0818, Flange End.....		33.00	40.00	47.00	60.00	.....	.....	.....
Fig. 0819, Flange End.....		35.00	42.00	50.00	63.00	94.00	110.00	215.00

For Detail Dimensions see Page 123

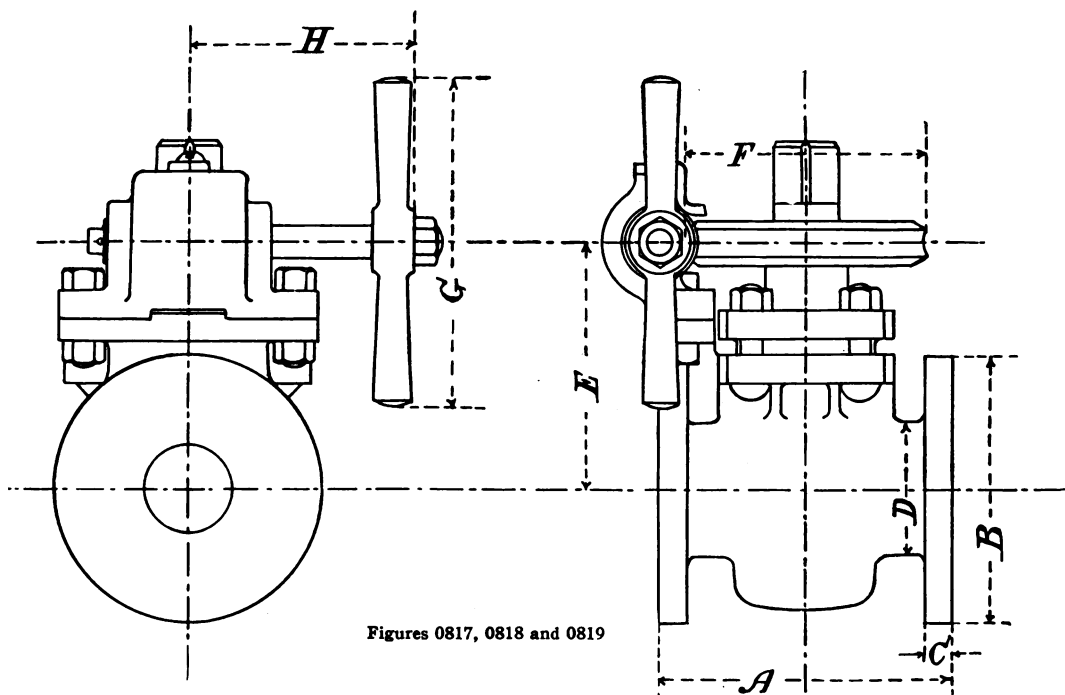
For Drilling see Pages 156 and 157



# Fairbanks Iron Cocks

Vulcanized Asbestos Packed

Worm Gear Attachment



Figures 0817, 0818 and 0819

## DETAIL DIMENSIONS

SIZE	INCHES		2	2½	3	3½	4	5	6	8
Face to Face, Flange End.....	A	Regular	7⅞	8¼	9¼	10¼	11½	13¾	16	19¾
		Heavy	7⅞	8¾	10⅞	11¼	12¼	.....	.....	.....
		Ex. Heavy	8	10	11½	12¾	15	18	19½	20
Diameter of End Flanges.....	B	Regular	6	7	7½	8½	9	10	11	13½
		H. & X. H.	6½	7½	8¼	9	10	11	12½	15
		Ex. Heavy	5⅞	7⅞	8¼	9	10	11	12½	15
Thickness of End Flanges.....	C	Regular	5⅞	7⅞	8¼	9	10	11	12½	15
		Heavy	11/16	3/4	7/8	1	1 1/16	.....	.....	.....
		Ex. Heavy	7/8	1	1 1/8	1 3/16	1 1/4	1 3/8	1 7/16	1 1/2
Diameter Behind End Flanges.....	D	Regular	3¼	3 5/8	4¼	4 7/8	5 3/8	6 5/8	7 7/8	10
		Heavy	3¼	4 1/8	5	5 1/2	6	.....	.....	.....
		Ex. Heavy	3 3/8	4 1/4	5 1/8	5 3/4	6 3/8	7 3/8	8 3/4	10 1/4
Center of Pipe to Center of Operating Shaft.....	E	Regular	5 1/16	6 1/8	6 3/4	7 1/16	8 3/16	9 7/8	11 1/16	12 3/16
		Heavy	6	6 1/16	7 3/8	8 3/4	9 1/2	.....	.....	.....
		Ex. Heavy	6 1/2	7 1/16	8 1/16	8 3/4	9 1/2	9 7/8	11 1/16	12 3/16
Diameter of Gear.....	F	R. H. & X. H.	6	7 1/2	8¼	9 1/16	9 9/16	12 1/4	14 1/4	18 1/4
Length of Operating Handle.....	G	R. H. & X. H.	10	10	12 1/8	14	14	17 3/4	23 3/4	.....
Center of Plug to End of Operating Handle.....	H	R. H. & X. H.	5 1/2	6 1/8	6 3/8	9	9	11 1/2	11 1/2	14 3/4

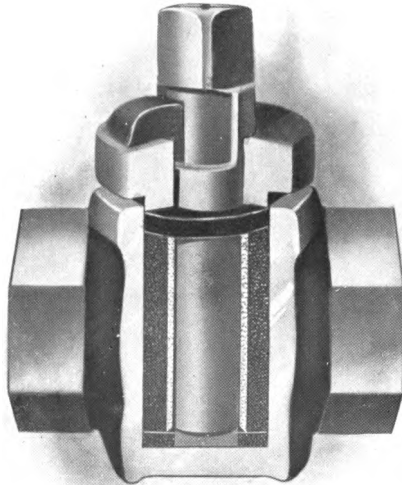
---

---

# Fairbanks Iron Cocks

**Vulcanized Asbestos Packed**

**Locomotive Pattern**



The above illustration shows our Asbestos Packed Locomotive Blow-off Cock, with a section of the body removed in order that the plug and packing may be seen.

The dove-tailed grooves in the body are packed with prepared asbestos, and a vulcabeston ring is used between the gland and the shoulder of the plug for top packing. The bottom packing is a vulcabeston ring, reinforced by a lead washer. The plug is straight, carefully finished and barffed to render it rustless.

These Cocks are used for locomotive service.

Cut illustrates Cock with quarter stop; can be made plain plug, no stop.

# Fairbanks Iron Cocks

Vulcanized Asbestos Packed

Locomotive Pattern

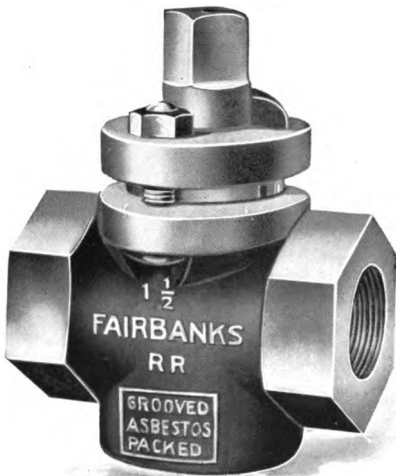


Figure 0820—(Vexer)

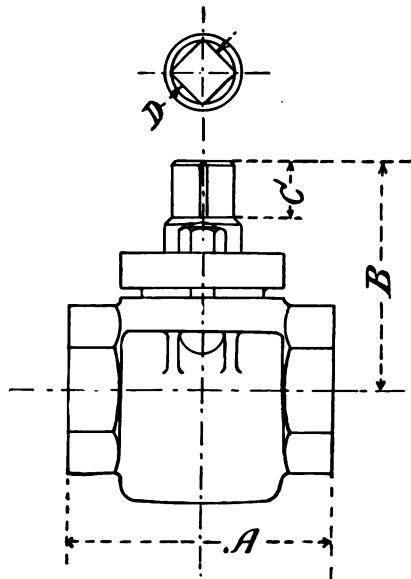
## PRICE LIST

SIZE	INCHES	1½	2
Fig. 0820, Screw End.....		5.75	8.50

200 Pounds Steam Working Pressure

## DETAIL DIMENSIONS

SIZE	INCHES	1½	2
End to End, Screw End.....	A	5 9/16	6 1/2
Center to Top of Plug.....	B	4 5/8	5 3/8
Length of Square on Plug.....	C	1 1/8	1 7/16
Size of Square on Plug.....	D	1 1/16	1 3/8



# Fairbanks Brass and Iron Cocks

Vulcanized Asbestos Packed

## Wrenches and Top Rings

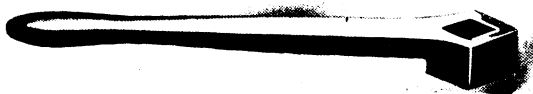


Figure 0821—(Vexil)

### PRICE LIST

SIZE	INCHES	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$
Fig. 0821, Straightway Cock .....		.10	.10	.10	.20	.20	.30	.40
SIZE	INCHES	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	5	6
Fig. 0821, Straightway Cock .....		.50	1.00	1.50	1.60	1.75	3.00	3.00



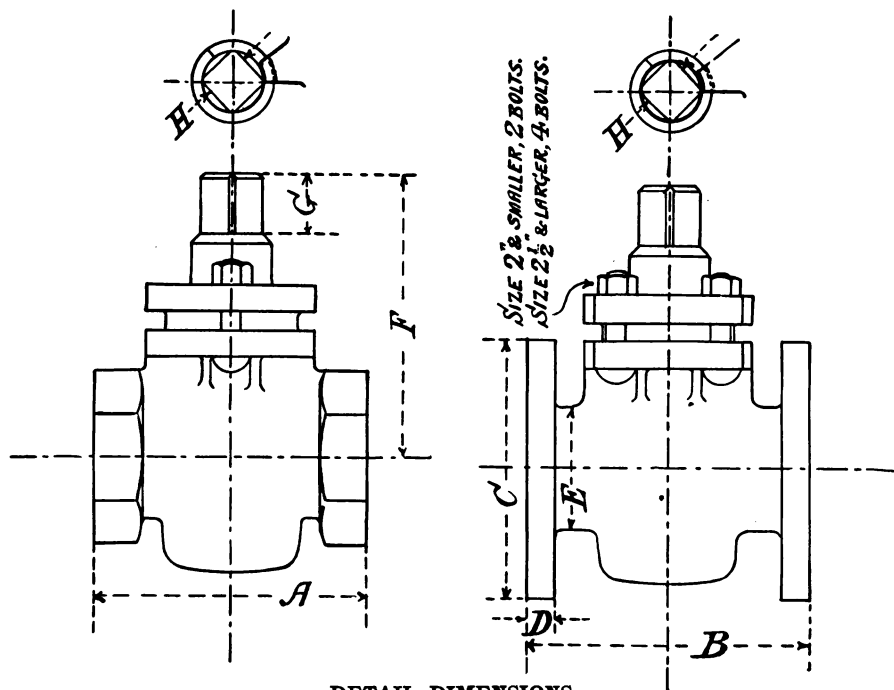
Figure 0824—(Vial)

### PRICE LIST

SIZE	INCHES	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$
Fig. 0824, Straightway Cock .....		.08	.08	.08	.11	.17	.20	.25
SIZE	INCHES	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	5	6
Fig. 0824, Straightway Cock .....		.34	.50	.80	1.04	1.80	2.50	5.00

# Fairbanks Regular Iron and Brass Heavy and Extra Heavy Iron Cocks

Vulcanized Asbestos Packed



DETAIL DIMENSIONS

SIZE	REGULAR IRON AND BRASS	INCHES	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	5	6
End to End, Screw End.....	A	2 1/2	2 1/2	3	3 3/8	4	4 5/8	5 1/4	5 1/2	6	7	8 1/8	8 3/4	9 1/2	11 1/2	14 3/4
Face to Face, Flange End.....	B	4	4 1/4	4	4 3/4	5 1/4	5 3/4	5 3/4	7 1/8	8 1/4	9 1/4	10 1/4	11 1/2	13 3/4	16	
Diameter of End Flanges.....	C	3	3 1/2	3	3 1/2	4	4 1/2	5	6	7	7 1/2	8 1/2	9	10	11	
Thickness of End Flanges.....	D	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	
Diam. Behind End Flanges.....	E	1 1/8	1 1/8	1 1/8	1 1/8	1 1/8	2	2 1/4	3 1/4	3 5/8	4 1/4	4 5/8	5 1/8	6 1/8	7 1/8	
Center to Top of Plug.....	F	2 1/8	2 1/8	2 3/4	3 3/8	4 1/8	5 1/4	6 1/8	7 5/8	8 1/4	9	9 5/8	10 1/8	12 3/4	14 1/4	
Length of Square on Plug.....	G	1 1/8	1 1/8	1 1/8	1 1/8	1 1/8	1 1/8	1 1/8	1 1/8	1 1/8	1 1/8	1 1/8	1 1/8	1 1/8	1 1/8	
Size of Square on Plug.....	H	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	

SIZE	HEAVY IRON	INCHES	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4
End to End, Screw End.....	A	3 1/4	3 1/4	3 7/8	4 1/8	4 3/4	5 3/8	5 7/8	6 7/8	7 3/4	8 3/4	10	10 1/2	13 5/8
Face to Face, Flange End.....	B	4	4	4 1/4	4 1/2	4 3/4	5 1/4	5 3/4	6 1/4	7 1/8	8 1/4	10 1/4	11 1/4	12 3/4
Diameter of End Flanges.....	C	3 1/2	3 1/2	4	4 1/2	4 1/2	5 1/4	6	6 1/2	7 1/2	8 1/2	9	10	11
Thickness of End Flanges.....	D	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8
Diameter Behind End Flanges.....	E	1 1/8	1 1/8	1 1/8	1 1/8	1 1/8	2	2 1/4	3 1/4	4 1/4	4 5/8	5 1/8	6 1/8	7 1/8
Center to Top of Plug.....	F	2 1/8	2 1/8	3 1/4	4 1/8	4 3/4	5 3/8	6 1/4	7 1/8	8 1/4	9 1/4	10 1/4	11 1/4	12 3/4
Length of Square on Plug.....	G	1 1/8	1 1/8	1 1/8	1 1/8	1 1/8	1 1/8	1 1/8	1 1/8	1 1/8	1 1/8	1 1/8	1 1/8	1 1/8
Size of Square on Plug.....	H	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2

SIZE	EXTRA HEAVY IRON	INCHES	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4
End to End, Screw End.....	A	3 1/4	3 1/4	3 3/4	4 1/8	4 3/4	5 3/8	5 7/8	6 7/8	7 3/4	8 3/4	10 1/4	12 1/2	15
Face to Face, Flange End.....	B	4	4	4 1/4	4 1/2	4 3/4	5 1/4	5 3/4	6 1/4	7 1/8	8 1/4	10 1/4	12 3/4	15
Diameter of End Flanges.....	C	3 1/2	3 1/2	4	4 1/2	4 1/2	5 1/4	6	6 1/2	7 1/2	8 1/2	9	10	11
Thickness of End Flanges.....	D	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8
Diameter Behind End Flanges.....	E	1 1/8	1 1/8	1 1/8	1 1/8	1 1/8	2	2 1/4	3 1/4	4 1/4	4 5/8	5 1/8	6 1/8	7 1/8
Center to Top of Plug.....	F	3	3	3 1/4	4 1/8	4 3/4	5 3/8	6 1/4	7 1/8	8 1/4	9 1/4	10 1/4	11 1/4	12 3/4
Length of Square on Plug.....	G	1 1/8	1 1/8	1 1/8	1 1/8	1 1/8	1 1/8	1 1/8	1 1/8	1 1/8	1 1/8	1 1/8	1 1/8	1 1/8
Size of Square on Plug.....	H	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2

---

---

## Fairbanks "SpherO" Ball Valves

To meet the need of an easily operated quickly repaired valve—one that can be used as a Blow-off, or in rubber, soap and galvanizing plants; as a throttle valve for marine, stationary or locomotive service; for oils, hydraulics, etc., we have designed and patented the Fairbanks "SpherO" Ball Valve.

The construction of either flange or screw end is simple and substantial. The valve has straight through passageway, renewable seats, interchangeable parts, and is easily opened or closed.

Engineers and purchasing agents will realize how carefully we have covered in this valve the method of quick and easy repair, as it requires no lathe work, filing or expert service to replace parts.

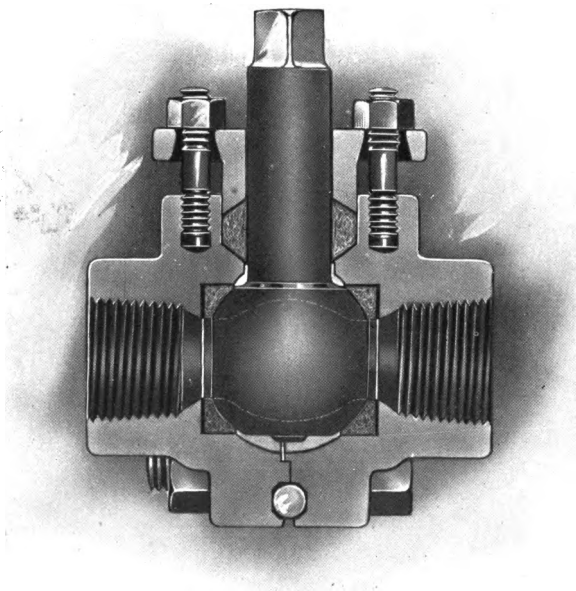
Standard seats are of vulcabeston.

We do not furnish wrenches with valves except upon special order.

---

---

## Fairbanks "SpherO" Ball Valves



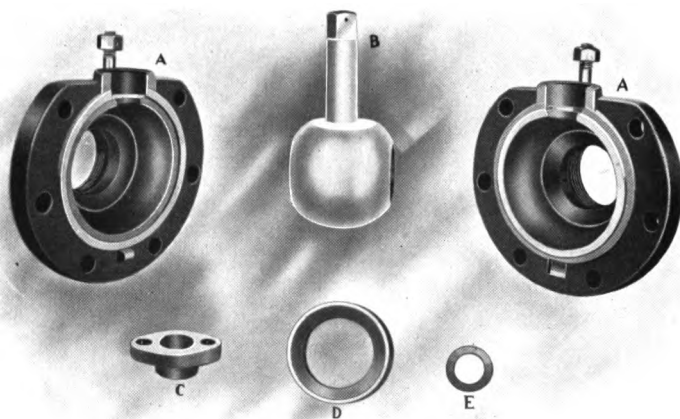
**SECTIONAL VIEW**  
Showing Interior Parts

---

---

# Fairbanks "SpherO" Ball Valves

## PARTS



- A—Bodies
- B—Ball Plug
- C—Follower
- D—Seat Ring
- E—Seat Ring Gasket

In ordering parts, specify them by reference both to the names  
and to the descriptive letters



---

---

# Fairbanks "SpherO" Ball Valves

175 Pounds Working Pressure



Figure 0828—Screw End (Vicar)  
Figure 0829—Flange End (Vicarage)

## PRICE LIST

SIZE	INCHES	1	1¼	1½	2	2½	3
Fig. 0828, Screw End.....		8.00	10.75	13.75	19.00	25.00	35.00
Fig. 0829, Flange End.....		8.00	10.75	13.75	19.00	25.00	35.00

List Price does not include Wrenches

For Description see Page 128

For Detail Dimensions see Page 134

---

---

# Fairbanks "SpherO" Ball Valves

Straight Pattern

250 Pounds Working Pressure

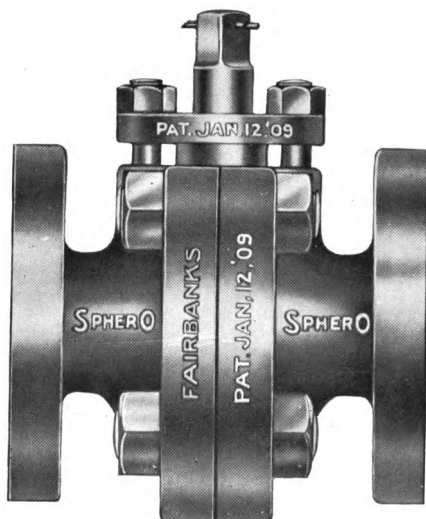


Figure 0830—Flange End (Vicarship)

## PRICE LIST

SIZE	INCHES	1½	2	2½
Fig. 0830, Flange End .....		14.25	20.50	27.00

List Price does not include Wrenches

For Description see Page 128

For Detail Dimensions see Page 135

---

---

# Fairbanks "SpherO" Ball Valves

Angle Pattern

250 Pounds Working Pressure

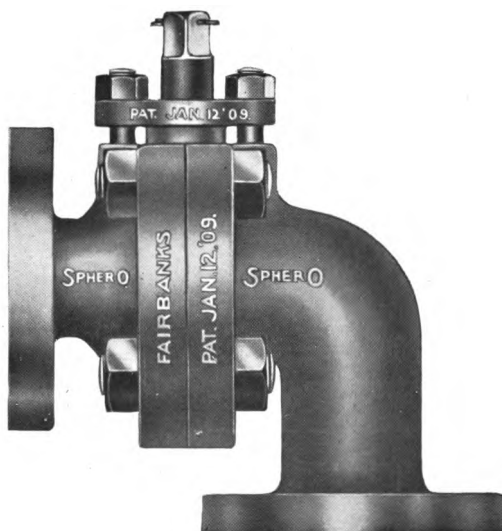


Figure 0831—Flange End (Viceroy)

## PRICE LIST

SIZE	INCHES	1½	2	2½
Fig. 0831, Flange End.....		15.75	22.55	30.00

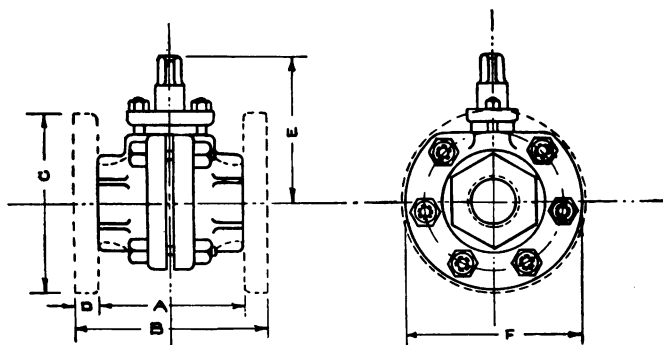
List Price does not include Wrenches

For Description see Page 128

For Detail Dimensions see Page 135

# Fairbanks "SpherO" Ball Valves

175 Pounds Working Pressure



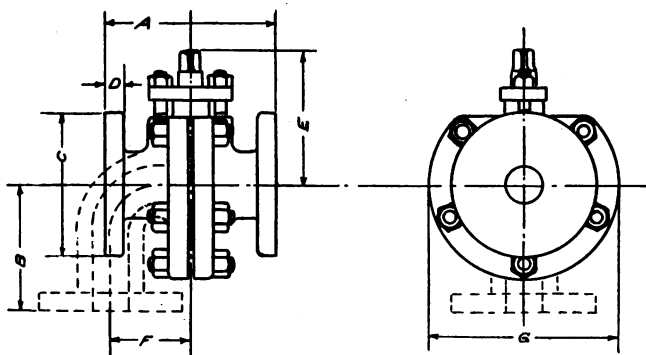
Figures 0828 and 0829

## DETAIL DIMENSIONS

SIZE	INCHES	1	1¼	1½	2	2½	3
End to End, Screw End.....	A	4⅛	4½	4¾	5⅞	6¾	7¾
Face to Face, Flange End.....	B	5½	5⅝	6⅜	7⅞	8½	9½
Diameter of End Flanges.....	C	4½	5	6	6½	7½	8¼
Thickness of Flanges.....	D	⅞	¾	⅝	⅞	1	1⅛
Center to Top of Spindle.....	E	4⅜	4⅜	4⅝	5⅞	6⅞	7
Diameter of Body Center Flanges.....	F	4⅜	5⅞	5⅞	7	8⅞	9⅞
Diameter of Square on Spindle.....	...	1⅞	1⅞	1⅞	1⅞	1⅞	1⅞

# Fairbanks "SpherO" Ball Valves

250 Pounds Working Pressure



Figures 0830 and 0831

## DETAIL DIMENSIONS

SIZE	INCHES	1½	2	2½
Face to Face.....	A	7 1/8	7 3/4	9
Face to Center, Angle.....	B	5 5/16	5 3/4	7 1/16
Diameter of Pipe Flanges.....	C	6	6 1/2	7 1/2
Thickness of Pipe Flanges.....	D	1 1/16	7/8	1
Center to Top of Spindle.....	E	5 11/16	6 11/16	7 7/8
Center of Angle to Center of Valve.....	F	3 5/16	3 3/4	4 3/8
Diameter of Body Flanges.....	G	7 7/8	8 3/4	10 1/8
Diameter of Square on Spindle.....		1 1/16	1 1/16	1 5/16



“SPHERO”

# Dart Unions

Two Bronze Seats Prevent Corrosion

Malleable Iron Pipe Ends and Nut Insure Strength and Durability

These two points are essential to make perfect and lasting joints

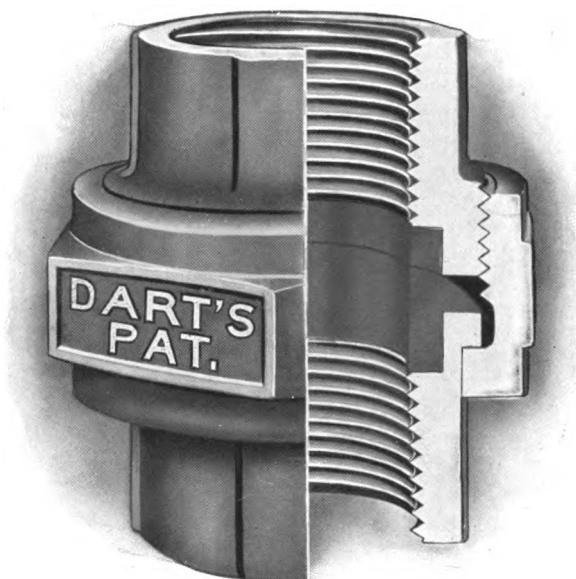


Figure 0832—(Viceroyal)

## Female Union

### PRICE LIST

SIZE	INCHES	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4
Fig. 0832, Plain .....		.30	.30	.40	.50	.60	.80	1.20	1.60	2.00	3.20	4.80	7.20	10.80
Fig. 0832, Galvanized....		.45	.45	.60	.75	.90	1.20	1.80	2.40	3.00	4.80	7.20	10.80	16.20

# Dart Flange Unions

## Two Bronze Seats Prevent Corrosion

Absolutely tight joints assured whether *in* or *out* of Alignment  
Adapted for high or low pressure. Furnished with Bolts and Nuts

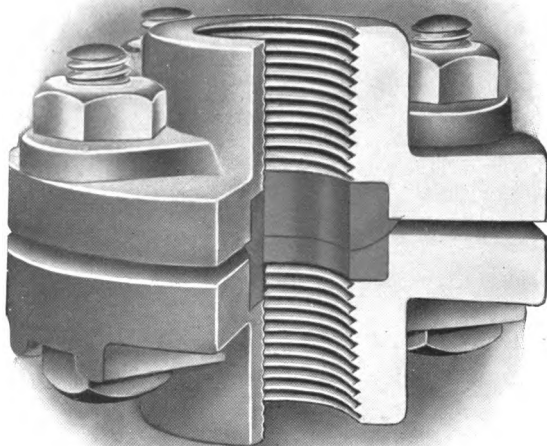


Figure 0833—(Vicinage)

### PRICE LIST

SIZE	INCHES	½	¾	1	1¼	1½	2	2½	3	3½
Fig. 0833, Plain .....		.55	.60	.80	1.20	1.60	2.00	3.20	4.80	6.00
SIZE	INCHES	4	4½	5	6	7	8	9	10	12
Fig. 0833, Plain .....		7.50	8.75	10.00	12.50	15.00	18.00	21.60	28.80	46.00

10% Net Advance for Malleable Iron Flanges  
35% Net Advance for Galvanized Flanges  
Prices for Extra Heavy Flanges on Request



# Dart Unions

Two Bronze Seats Prevent Corrosion

Malleable Iron Pipe Ends and Nut Insure Strength and Durability

These two points are essential to make perfect and lasting joints

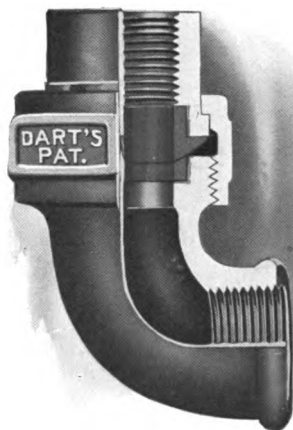


Figure 0834—(Vicinal)

Union  
Elbows  
  
Female,  
and  
Male and  
Female

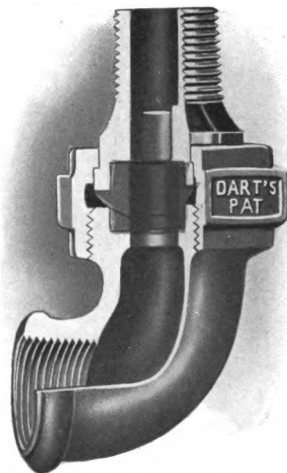


Figure 0835—(Vicinalis)

## PRICE LIST

SIZE	INCHES	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$
Figs. 0834 and 0835, Plain..		.45	.60	.75	.90	1.20	1.80	2.40	3.00	4.80

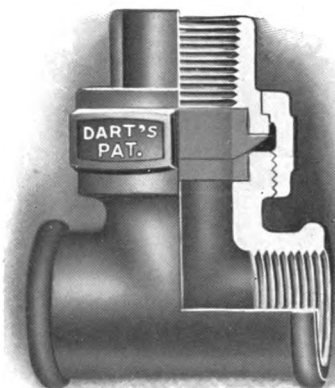


Figure 0836—(Vicinity)

Tee Union  
on  
the outlet  
  
Female or  
Male

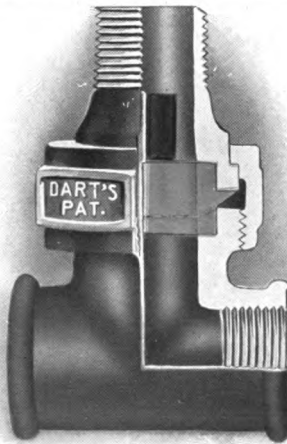


Figure 0837—(Vicinitas)

## PRICE LIST

SIZE	INCHES	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Figs. 0836 and 0837, Plain .....		.66	.82	.99	1.32	1.98	2.64	3.30

30% Advance for Galvanized

# Dart Unions

Two Bronze Seats Prevent Corrosion

Malleable Iron Pipe Ends and Nut Insure Strength and Durability

These two points are essential to make perfect and lasting joints

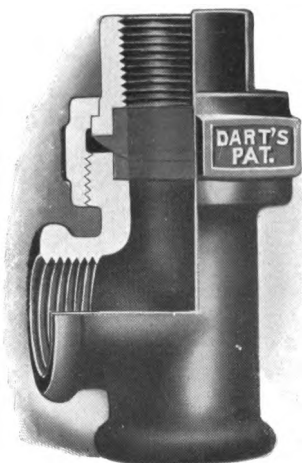


Figure 0838—(Vicious)

Tee Union on  
the run

Female or  
Male

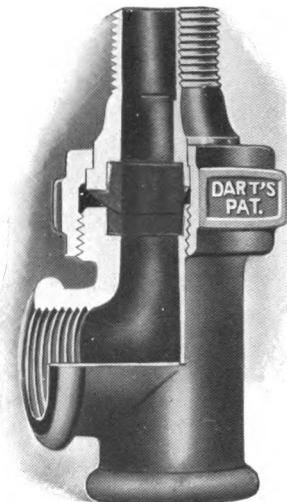


Figure 0839—(Vicious)

Male and Female Union

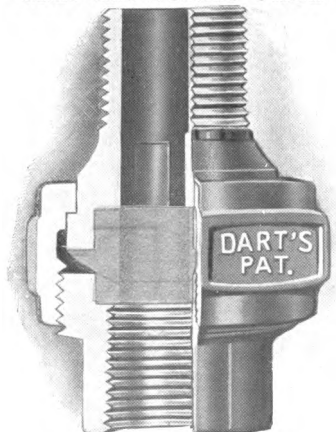


Figure 0840—(Viciously)

Air Pump Union

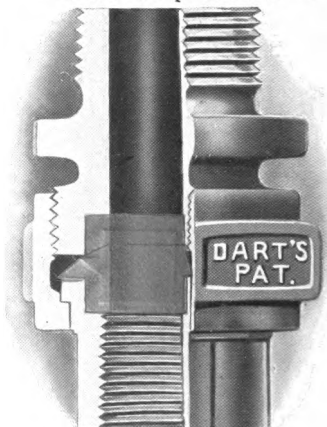


Figure 0841—(Vicount)

## PRICE LIST

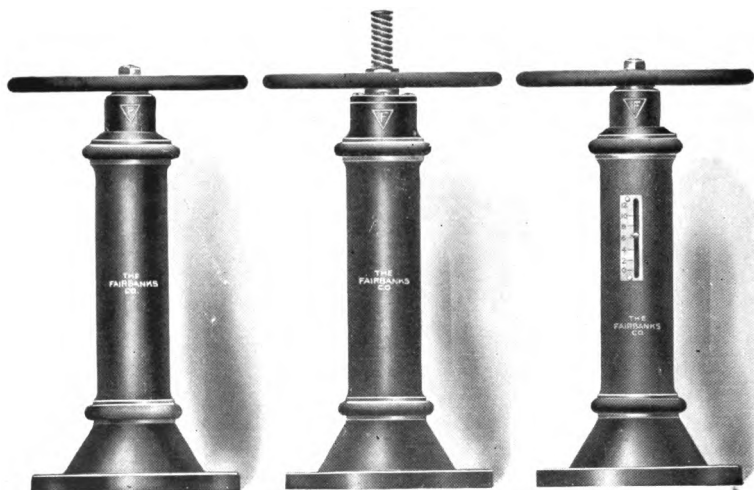
SIZE	INCHES	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Figs. 0838 and 0839		.66	.82	.99	1.32	1.98	2.64	3.30	4.00	6.00	
Fig. 0840		.38	.50	.62	.75	1.00	1.50	2.00	2.50		
SIZE	INCHES	$\frac{3}{4} \times 1$		$1 \times 1\frac{1}{4}$		$1\frac{1}{4} \times 1\frac{1}{2}$		$1\frac{1}{2} \times 2$			
Fig. 0841		.90		1.20		1.80		2.40			

30% Advance for Galvanized

**Floor Stands**  
**Adaptation of Gearing**  
**Indicator Posts**  
**Companion Flanges**  
**Valve Seating Tools**

# Fairbanks Iron Floor Stands

For Globe and Gate Valves



**Figure 01001—(Victim)**  
For Globe and Stationary  
Spindle Gate Valves

**Figure 01002—(Victima)**  
For Rising Spindle Gate Valves

**Figure 01003—(Victor)**  
With Indicator for Stationary  
Spindle Gate Valves

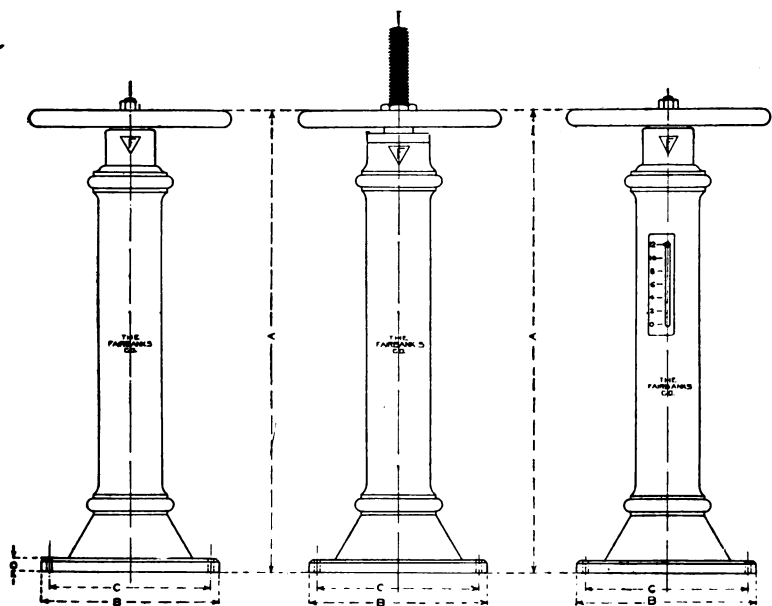
## PRICE LIST

Fig. 01001, Painted Stand, Japanned Wheel.....	27.00
Fig. 01002, Painted Stand, Japanned Wheel.....	32.50
Fig. 01003, Painted Stand, Japanned Wheel.....	32.50
Fig. 01001 Finished All Over, Finished Wheel.....	102.00
Fig. 01002, Finished All Over, Finished Wheel.....	107.50
Fig. 01003, Finished All Over, Finished Wheel.....	107.50

For Detail Dimensions see Page 143

# Fairbanks Iron Floor Stands

For Globe and Gate Valves



Figures 01001, 01002 and 01003

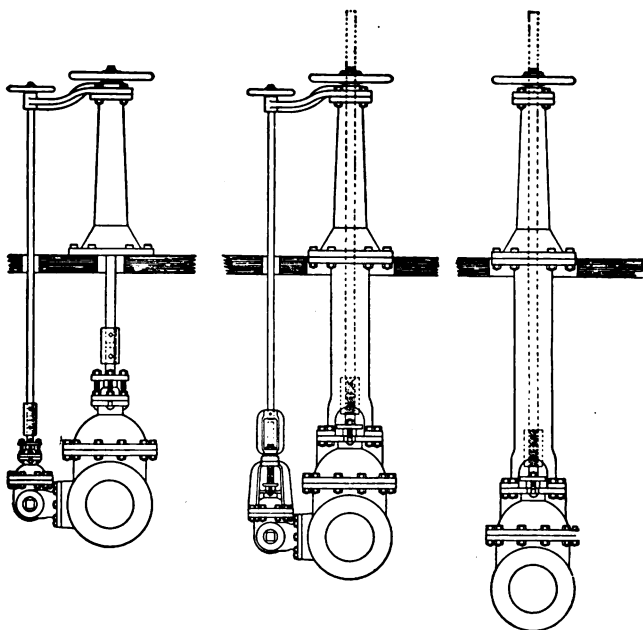
## DETAIL DIMENSIONS

		INCHES
Bottom of Floor Flange to Top of Wheel.....	A	36
Diameter of Floor Flange.....	B	15
Diameter of Floor Flange Bolt Circle.....	C	13½
Thickness of Floor Flange.....	D	1

---

---

## Floor Stand Combinations



**Figure 0322—(Victory)**

**Figure 0323—(Victress)**

**Figure 0324—(Victual)**

Fig. 0322—Stationary Spindle Stand connected to Stationary Spindle Valve and By-pass.

Fig. 0323—Rising Spindle Stand with Extension Bracket for By-pass Spindle. Stand is connected to valve by a distance piece. By-pass has Rising Spindle.

Fig. 0324—Rising Spindle Stand connected to valve by a distance piece.

**Prices Upon Application**

## Floor Stand Combinations

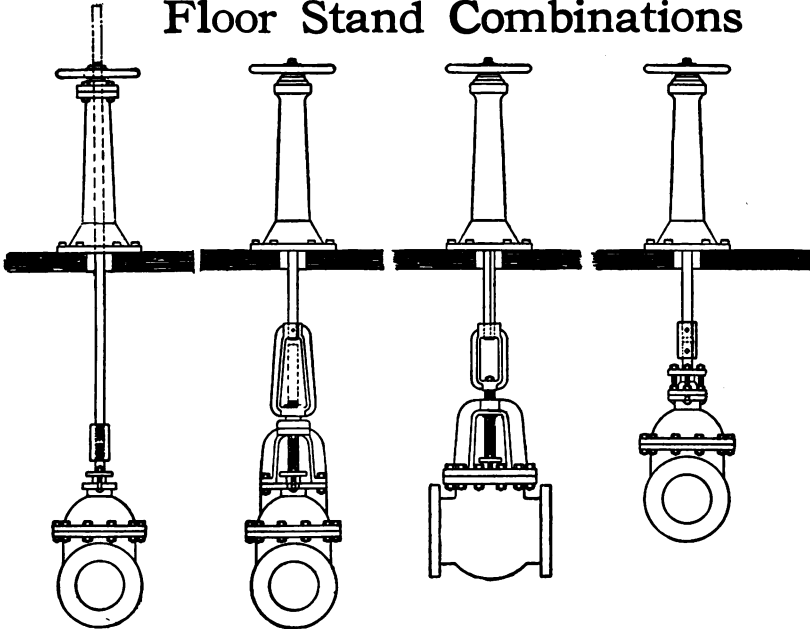


Figure 0325—(Side)    Figure 0326—(Side)    Figure 0327—(Side)    Figure 0328—(Side)

Fig. 0325—Rising Spindle Stand, bolted to floor and connected to valve with coupling.

Fig. 0326—Stationary Spindle Stand, connected to Rising Spindle Valve.

Fig. 0327—Stationary Spindle Stand, connected to Globe Valve.

Fig. 0328—Stationary Spindle Stand, connected to Stationary Spindle Valve.

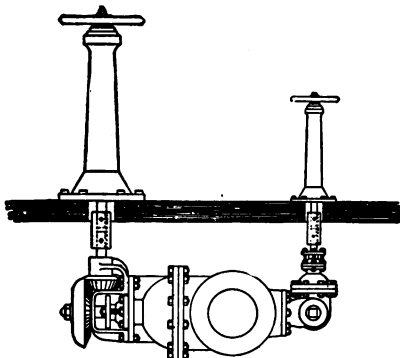


Figure 0329—(Side)

Fig. 0329—Stationary Spindle Stand, connected to valve with bevel gear and By-pass.

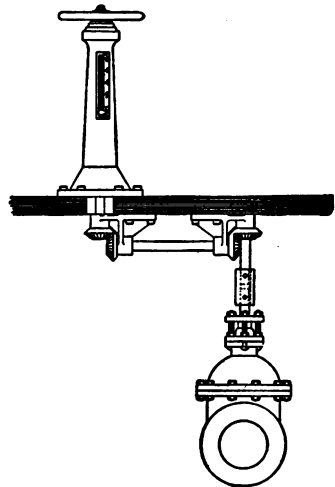


Figure 0330—(Side)

Fig. 0330—Indicator Floor Stand, connected to valve by floor brackets and mitre gears.

Prices Upon Application

## Adaptation of Gearing

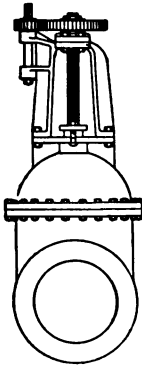


Figure 0331—(Vigilance)

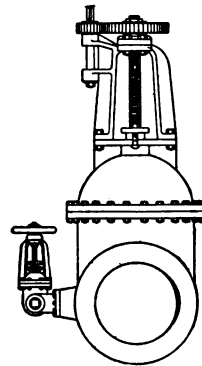


Figure 0332—(Vigilant)

Fig. 0331—Rising Spindle Spur Gear with pinion shaft Keyseated for coupling.

Fig. 0332—Rising Spindle Spur Gear with pinion shaft Keyseated for coupling. By-pass with handwheel.

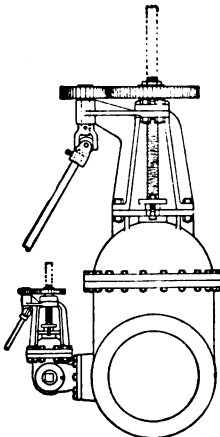


Figure 0333—(Vignette)

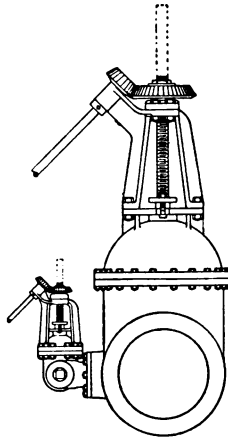


Figure 0334—(Vigor)

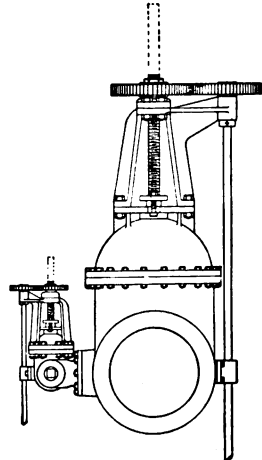


Figure 0335—(Viking)

Fig. 0333—Spur Gearing with operating shafts fitted with universal joints to operate at any angle up to 30 degrees.

Fig. 0334—Angle Gearing with extended operating shafts; built for any angle.

Fig. 0335—Spur Gearing with operating shafts for operating from below.

Prices Upon Application



---

---

## Adaptation of Gearing

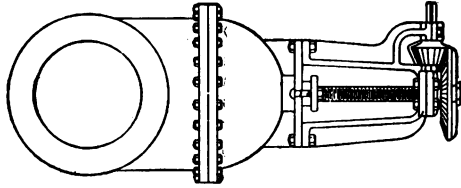


Figure 0338—(Vilayet)

Rising Spindle Bevel Gear with pinion shaft Keyseated for coupling

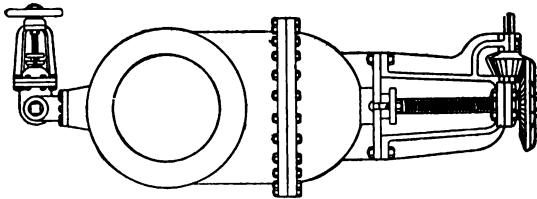


Figure 0339—(Vilipend)

Rising Spindle Bevel Gear with pinion shaft Keyseated for coupling  
By-pass with handwheel

Prices Upon Application

---

---

## Adaptation of Gearing

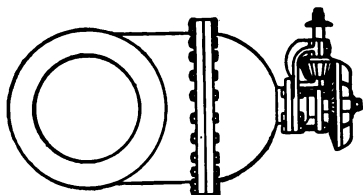


Figure 0320—(Villa)

Bevel Gear and 2-inch square  
operating nut

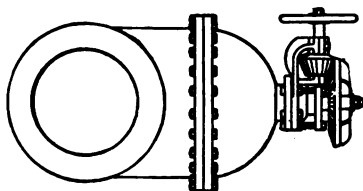


Figure 0321—(Villian)

Bevel Gear and Handwheel

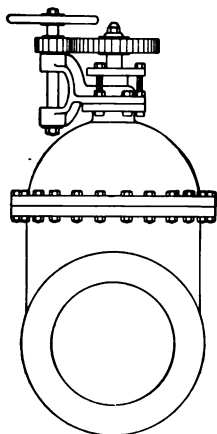


Figure 0340—(Villiany)

Spur Gear and Handwheel

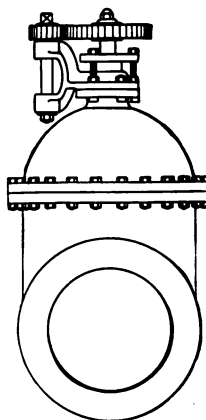


Figure 0343—(Villanage)

Spur Gear with 2-inch square  
operating nut

Prices on Application

# Fairbanks Indicator Valve Posts for Fire Protection Valves

Patent Applied For



Figure 0409—(Villiform)

This post shows plainly whether the Valve is Opened or Closed, and is intended to be used with fire protection valves in street mains, factory and mill yards, grounds of public buildings, etc. It is specified by the Fire Underwriters for this purpose, and prevents all delay and mistakes in finding and operating the valve.

The size and shape of the operating nut will be made to conform to the standard of the system in which the valves are to be used. Our standard for operating nut is  $1\frac{1}{4}$  inches square.

In ordering state whether valves turn to right or to left to open; distance from surface of ground to bottom of pipe; number of turns required to open valve; size and shape of operating nut.

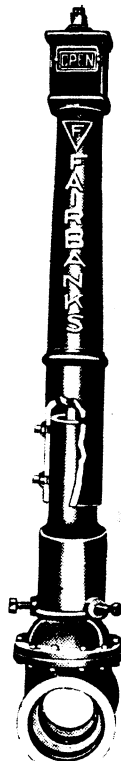


Figure 0410—(Villose)

## PRICE LIST

Figs. 0409 and 0410, Indicator Post Only, 5 Foot Trench .....	30.00
Post and Valve complete, add to price of Indicator Post, as above given, the price of size and style of valve to be used.	
Fig. 0411, Wrench for Top Nut .....	1.00



Figure 0411—(Vim)

# Fairbanks Standard Iron Companion Flanges

Adopted July 18, 1894, by Committee of Master Steam and Hot Water Fitters'  
Association, Committee of American Society of Mechanical Engineers,  
and Representatives of Valve and Fitting Manufacturers

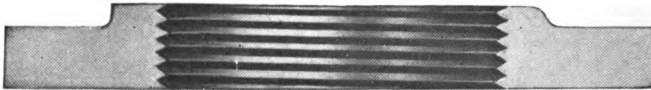


Figure 01004—(Vincible)

## PRICE LIST

SIZE	INCHES	2	2½	3	3½	4	4½	5	6
Fig. 01004.....		1.50	2.00	2.25	2.50	3.00	3.25	3.65	4.00
Diameter.....		6	7	7½	8½	9	9¼	10	11

SIZE	INCHES	7	8	9	10	12	14	16	
Fig. 01004.....		5.75	6.50	8.25	9.25	12.50	16.00	26.00	.....
Diameter.....		12½	13½	15	16	19	21	23½	.....

The Above Prices Include Drilling

# Fairbanks Heavy and Extra Heavy Iron Companion Flanges

Adopted June 28, 1901, at Manufacturers'  
Meeting, New York City



Figure 01005—(Vincture)



Figure 01006—(Vindicate)



Figure 01007—(Vinegar)



Figure 01008—(Vineyard)



Figure 01009—(Vingtum)

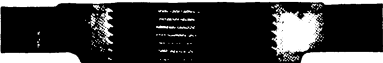


Figure 01010—(Vinic)

Size	Diameter	Figure 01006 Plain Flange, Each	Figures 01007 and 01008 Extra for Male or Female, per Flange	Figures 01009 and 01010 Extra for Tongue or Groove, per Flange	Figure 01005 Extra for Caulking Recess, per Flange
2	6½	1.80	.96	.96	.80
2½	7½	2.00	1.08	1.08	.80
3	8¾	2.60	1.20	1.20	.80
3½	9	2.85	1.50	1.50	.80
4	10	3.85	2.00	2.00	.80
4½	10½	4.37	2.00	2.00	.95
5	11	4.75	2.00	2.00	.95
6	12½	6.25	2.50	2.50	1.20
7	14	7.60	3.00	3.00	1.20
8	15	8.10	4.00	4.00	1.35
9	16	9.40	4.00	4.00	1.55
10	17½	11.00	4.00	4.00	1.55
12	20	17.50	5.50	5.50	1.85
14	22½	25.50	7.00	7.00	2.20
16	25	31.00	8.50	8.50	2.35

Unless otherwise specified, all flanges of Medium and Extra Heavy Valves  
are furnished with ⅓ inch raised face, for which no  
extra charge is made

The Above Prices Do Not Include Drilling

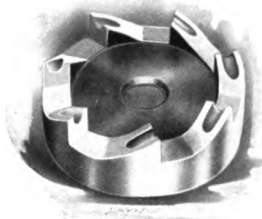


Figure 03190—(Viny)

## Facing Tools for Fairbanks Valves

These Tools are made especially for the Fairbanks Valves, leaving the raised seat the same as in the original valve.

### PRICE LIST

SIZE	INCHES	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Fig. 03190, each	.....	1.25	1.50	1.75	2.25	2.75	3.25	4.00	5.00	6.00	7.00

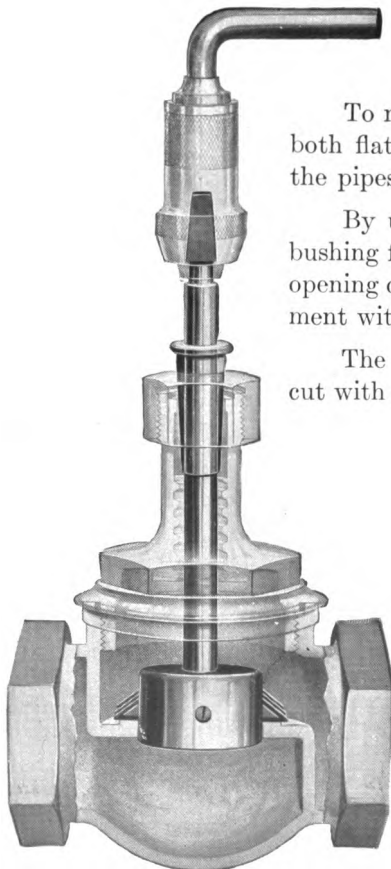


Figure 03191—(Viola)

## Skinner Valve Reseating Tools

To recut the seats of Globe and Angle Valves, both flat and taper, without removing them from the pipes and in perfect alignment with the stem.

By using the bonnet of the valve with the taper bushing for a guide at the top, and the guide in the opening of the valve at the bottom, a perfect alignment with the stem is assured.

The cutters are of tempered steel, giving a shear cut with plenty of clearance.

The Tools are highly polished and packed in a neat wooden case



### PRICE LIST

Set of Tools for $\frac{1}{2}$ inch to 2 inch Valves, complete	20.00
Set of Tools for $\frac{1}{2}$ inch to 3 inch Valves, complete	30.00

# Morse and Dexter Valve Reseating Machines

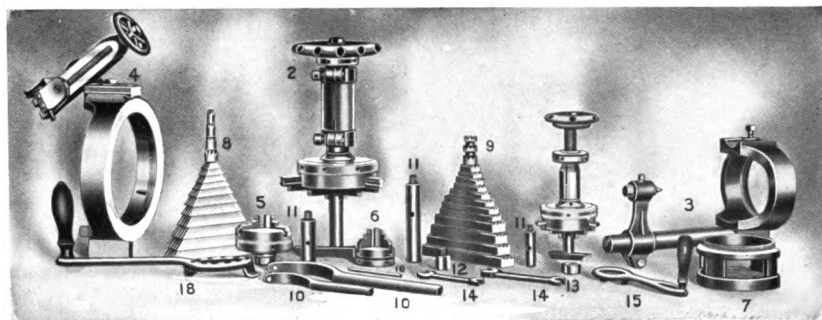


Figure 03197—(Violent)

Morse and Dexter Valve Reseaters are intended for repairing all Flat and Taper Seated Valves and their Discs from  $\frac{1}{4}$ " to 12", without disconnecting them from the pipes. The device for attaching to a valve to recut the seat consists of a Universal Chuck, with jaws that can be quickly and securely attached to all makes of valves from  $\frac{1}{4}$ " to 12", regardless of the size of the thread or diameter of the opening in the valve casing. Seats are cut by the use of tool steel cutters. The cutters for the smaller valves are made of round steel with teeth that radiate from the center; the larger sizes of flat bars of steel provided on opposite sides from the center with longitudinal, parallel, and oppositely inclined teeth. By this arrangement of the teeth, the cutters operate with a shearing cut, producing an absolutely true surface. The outfit shown in Figure 03197 includes two Valve Reseating Machines, 15 Flat Seat and 15 Taper Seat Cutters, two sizes of Improved Disc Cutters with adjustable attachment, which will true all flat, taper, and oval valve discs  $\frac{1}{4}$ " to 6", including those having radial wings or projections, check valves, etc., two sizes of Disc Holding Chucks, Spanners, etc. Packed in a polished case with tray for cutters. (Illustration shows No. 6 Valve Reseater.)

No. 3—For reseating Valves and Discs,  $\frac{1}{4}$ " to 3"

No. 4—For reseating Valves and Discs,  $\frac{1}{4}$ " to 4"

No. 6—For reseating Valves and Discs,  $\frac{1}{4}$ " to 6"

## Patent Valve File

This is a complete, simple, and effective tool for repairing the seat of all flat-seated valves. It is used with an ordinary bit-stock; and valves can be repaired without disconnecting them from the pipes, thereby saving time and money.

### PRICE LIST

Set No. 1, $\frac{3}{8}$ to 1 in...	4 Sizes	15.00
Set No. 2, $\frac{1}{2}$ to 2 in...	5 Sizes	20.00
Set No. 3, $\frac{3}{4}$ to 2 in...	7 Sizes	25.00
Set No. 4, $\frac{3}{4}$ to 3 in...	9 Sizes	35.00

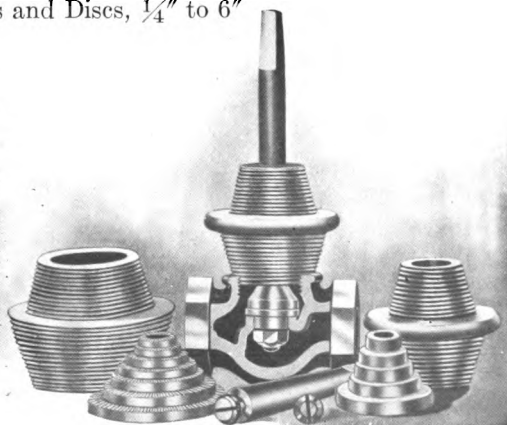


Figure 03202—(Violet)

# Price List per Valve for Special Work on End Flanges

Size	Drilling		Tongueing		Grooving		Raised Faces	Scoring	
	Standard	Heavy and Extra Heavy	Standard	Heavy and Extra Heavy	Standard	Heavy and Extra Heavy	Standard	Standard	Heavy and Extra Heavy
1/2	.45	.72	1.92	1.92	1.92	1.92	1.92	.60	.60
3/4	.45	.72	1.92	1.92	1.92	1.92	1.92	.60	.60
1	.45	.72	1.92	1.92	1.92	1.92	1.92	.60	.60
1 1/4	.45	.72	1.92	1.92	1.92	1.92	1.92	.60	.60
1 1/2	.45	.72	1.92	1.92	1.92	1.92	1.92	.60	.60
2	.45	.72	1.92	1.92	1.92	1.92	1.92	.60	.60
2 1/2	.45	.72	2.16	2.16	2.16	2.16	2.16	.80	.80
3	.45	.72	2.40	2.40	2.40	2.40	2.40	1.00	1.00
3 1/2	.45	.84	3.00	3.00	3.00	3.00	3.00	1.20	1.20
4	.45	.96	4.00	4.00	4.00	4.00	4.00	1.40	1.40
4 1/2	.90	.96	4.00	4.00	4.00	4.00	4.00	1.60	1.60
5	.90	1.08	4.00	4.00	4.00	4.00	4.00	2.00	2.00
6	1.10	1.60	5.00	5.00	5.00	5.00	5.00	2.00	2.00
7	1.35	2.00	6.00	6.00	6.00	6.00	6.00	2.32	2.32
8	1.35	2.40	8.00	8.00	8.00	8.00	8.00	2.32	2.32
9	2.15	2.60	8.00	8.00	8.00	8.00	8.00	2.68	2.68
10	2.15	3.60	8.00	8.00	8.00	8.00	8.00	2.68	2.68
12	2.85	4.32	11.00	11.00	11.00	11.00	11.00	3.00	3.00
14	2.85	5.00	14.00	14.00	14.00	14.00	14.00	4.00	4.00
15	.....	5.00	17.00	17.00	17.00	17.00	17.00	4.00	4.00
16	4.90	5.00	17.00	17.00	17.00	17.00	17.00	4.00	4.00
18	4.90	8.00	19.50	19.50	19.50	19.50	19.50	6.00	6.00
20	7.20	8.00	22.00	22.00	22.00	22.00	22.00	7.00	7.00
22	8.90	9.00	25.00	25.00	25.00	25.00	25.00	8.00	8.00
24	8.90	9.00	25.00	25.00	25.00	25.00	25.00	8.00	8.00
30	12.00	.....	.....	.....	.....	.....	.....	.....	.....
36	16.00	.....	.....	.....	.....	.....	.....	.....	.....
40	.....	.....	.....	.....	.....	.....	.....	.....	.....
42	.....	.....	.....	.....	.....	.....	.....	.....	.....
48	.....	.....	.....	.....	.....	.....	.....	.....	.....
54	.....	.....	.....	.....	.....	.....	.....	.....	.....
60	.....	.....	.....	.....	.....	.....	.....	.....	.....
66	.....	.....	.....	.....	.....	.....	.....	.....	.....
72	.....	.....	.....	.....	.....	.....	.....	.....	.....

When work is done on one flange only, figure two-thirds of the list



---

---

# **Threads**

## **Briggs Standard Gauge**

The threads in all our valves, up to and including 12 inch, are tapped to Briggs Standard Gauge, which has also been adopted as the Universal Standard by all the leading Manufacturers of Wrought Pipe, Valves and Fittings in the United States.

## **British Standard Thread**

We furnish our valves with the British Standard Thread as adopted by the Engineering Standards Committee in revised report under date of November, 1909, when English threads are specified. This report embodies all the important changes and preserves the old Whitworth Standards and form as far as possible. See Table, pages 166 and 167.

## **National Standard Hose Thread**

Unless otherwise specified, we cut the National Standard Hose threads on Hose Valves and Hydrant Nozzles in sizes  $2\frac{1}{2}$  to  $4\frac{1}{2}$  inches inclusive. Dimensions of these threads are shown in table on page 160. We earnestly request that all of our friends in the trade adopt this standard, as we are greatly interested in its standardization.

# Schedule of Flanges and Drilling

## for Iron Body Valves

Sizes 2" to 20" inclusive, adopted July 18, 1894, by a Committee of Master Steam and Hot Water Fitters' Association, a Committee of American Society of Mechanical Engineers, and the Representatives of Valve and Fitting Manufacturers.

Drill off center line of spindle.

Size of Valve Inches	Diameter of Flange Inches	Diameter of Bolt Circle Inches	Number of Bolts	Diameter of Bolts Inches	Thickness of Flanges
$\frac{1}{2}$	3	$2\frac{1}{8}$	4	$\frac{3}{8}$	For Thickness of Flanges, see Detail Dimension Tables
$\frac{3}{4}$	$3\frac{1}{2}$	$2\frac{1}{2}$	4	$\frac{3}{8}$	
1	4	3	4	$\frac{7}{16}$	
$1\frac{1}{4}$	$4\frac{1}{2}$	$3\frac{3}{8}$	4	$\frac{7}{16}$	
$1\frac{1}{2}$	5	$3\frac{7}{8}$	4	$\frac{1}{2}$	
2	6	$4\frac{3}{4}$	4	$\frac{5}{8}$	
$2\frac{1}{2}$	7	$5\frac{1}{2}$	4	$\frac{5}{8}$	
3	$7\frac{1}{2}$	6	4	$\frac{5}{8}$	
$3\frac{1}{2}$	$8\frac{1}{2}$	7	4	$\frac{5}{8}$	
4	9	$7\frac{1}{2}$	4	$\frac{3}{4}$	
$4\frac{1}{2}$	$9\frac{1}{4}$	$7\frac{3}{4}$	8	$\frac{3}{4}$	
5	10	$8\frac{1}{2}$	8	$\frac{3}{4}$	
6	11	$9\frac{1}{2}$	8	$\frac{3}{4}$	
7	$12\frac{1}{2}$	$10\frac{3}{4}$	8	$\frac{3}{4}$	
8	$13\frac{1}{2}$	$11\frac{3}{4}$	8	$\frac{3}{4}$	
9	15	$13\frac{1}{4}$	12	$\frac{3}{4}$	
10	16	$14\frac{1}{4}$	12	$\frac{7}{8}$	
12	19	17	12	$\frac{7}{8}$	
14	21	$18\frac{3}{4}$	12	1	
15	$22\frac{1}{4}$	20	16	1	
16	$23\frac{1}{2}$	$21\frac{1}{4}$	16	1	
18	25	$22\frac{3}{4}$	16	$1\frac{1}{8}$	
20	$27\frac{1}{2}$	25	20	$1\frac{1}{8}$	

# Schedule of Flanges and Drilling for Heavy and Extra Heavy Iron Body Valves

Sizes 2" to 24" inclusive, adopted June 28, 1901, at Manufacturers' Meeting,  
New York City.

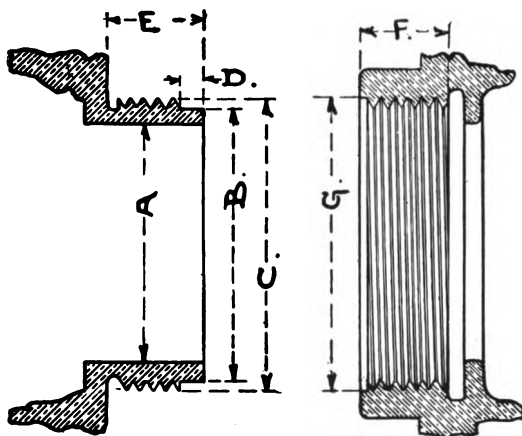
Drill off center line of spindle.

Size of Valve Inches	Diameter of Flange Inches	Diameter of Bolt Circle Inches	Number of Bolts	Diameter of Bolts Inches	Thickness of Flanges
1	4½	3¼	4	½	For Thickness of Flanges see Detail Dimension Tables
1¼	5	3¾	4	½	
1½	6	4½	4	⅝	
2	6½	5	4	⅝	
2½	7½	5⅞	4	¾	
3	8¼	6⅝	8	⅝	
3½	9	7¼	8	⅝	
4	10	7⅞	8	¾	
4½	10½	8½	8	¾	
5	11	9¼	8	¾	
6	12½	10⅝	12	¾	
7	14	11⅞	12	⅞	
8	15	13	12	⅞	
9	16	14	12	⅞	
10	17½	15¼	16	⅞	
12	20	17¾	16	⅞	
14	22½	20	20	⅞	
15	23½	21	20	1	
16	25	22½	20	1	
18	27	24½	24	1	
20	29½	26¾	24	1⅛	
22	31½	28¾	28	1⅛	
24	34	31¼	28	1⅛	



## **Tables and Useful Information**

# National Standard Hose Couplings



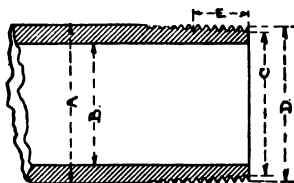
In the following table will be found specifications for the various dimensions and parts of the standard couplings as established.

## DIMENSIONS

Inside Diameter of Hose Coupling, Inches	A	2½	3	3½	4½
Diameter at Root of Thread.....	B	2.8715	3.3763	4.0013	5.3970
Outside Diameter of Thread.....	C	3⅛	3⅝	4¼	5¾
Length of Blank End on Male Part.....	D	¼	¼	¼	¼
Total Length of Male End.....	E	1	1⅛	1⅛	1⅜
Length of Female Thread.....	F	⅞	1	1	1¼
Diameter at Top of Female Thread.....	G	3.0925	3.6550	4.28	5.80
Number of Threads per Inch.....		7½	6	6	4

See Note Page 155

# American Standard Dimensions of Wrought Pipe for Water, Gas or Steam



Nominal Size	A	B	C	D	Number of Threads per Inch	E	Weight per Foot of Length	Contents in U. S. Gallons per Foot
Inches	Inches	Inches	Diam. at Bot. of Thr. at End of Pipe Inches	Diam. at Top of Thr. at End of Pipe Inches		Inches	Lbs.	Gals.
$\frac{1}{8}$	.405	.270	.334	.393	27	.19	.241	.0006
$\frac{1}{4}$	.540	.364	.433	.522	18	.29	.420	.0026
$\frac{3}{8}$	.675	.494	.567	.656	18	.30	.559	.0057
$\frac{1}{2}$	.840	.623	.701	.815	14	.39	.837	.0102
$\frac{3}{4}$	1.050	.824	.911	1.025	14	.40	1.115	.0230
1	1.315	1.048	1.144	1.283	$11\frac{1}{2}$	.51	1.668	.0408
$1\frac{1}{4}$	1.660	1.380	1.488	1.627	$11\frac{1}{2}$	.54	2.244	.0638
$1\frac{1}{2}$	1.900	1.610	1.727	1.866	$11\frac{1}{2}$	.55	2.678	.0918
2	2.375	2.067	2.200	2.339	$11\frac{1}{2}$	.58	3.609	.1632
$2\frac{1}{2}$	2.875	2.468	2.620	2.820	8	.89	5.739	.2550
3	3.500	3.067	3.241	3.441	8	.95	7.536	.3673
$3\frac{1}{2}$	4.000	3.548	3.738	3.938	8	1.00	9.001	.4998
4	4.500	4.026	4.235	4.435	8	1.05	10.665	.6528
$4\frac{1}{2}$	5.000	4.508	4.732	4.932	8	1.10	12.490	.8263
5	5.563	5.045	5.291	5.491	8	1.16	14.502	1.020
6	6.625	6.065	6.346	6.546	8	1.26	18.762	1.469
7	7.625	7.023	7.340	7.540	8	1.36	23.271	1.999
8	8.625	7.982	8.334	8.534	8	1.46	28.177	2.611
9	9.625	9.000	9.327	9.527	8	1.57	33.701	3.300
10	10.750	10.019	10.445	10.645	8	1.68	40.065	4.081
12	12.750	12.000	12.431	12.631	8	1.87	48.985	5.875

Taper of threads =  $\frac{3}{4}$  inch to one foot.

The angle of threads =  $60^\circ$ . They are slightly rounded off at both top and bottom.

Pipes 1 inch and below are butt-welded and tested to 300 pounds per square inch.

Pipes  $1\frac{1}{4}$  inch and above are lap-welded and tested to 500 pounds per square inch.

The above to be of the  $60^\circ$  V thread pattern with one-hundredth inch cut off the top of thread and one-hundredth inch left in the bottom of the valley of the  $2\frac{1}{2}$  inch, 3 inch, and  $3\frac{1}{2}$  inch couplings, and two hundredths inch in like manner for the  $4\frac{1}{2}$  inch couplings, and with  $\frac{1}{4}$  inch blank end on male part of coupling in each case. Female ends to be cut  $\frac{1}{8}$  inch shorter for endwise clearance. They should also be bored out .03 inch larger in the  $2\frac{1}{2}$  inch, 3 and  $3\frac{1}{2}$  inch sizes, and .05 inch larger on the  $4\frac{1}{2}$  inch size in order to make up easily and without jamming or sticking.

# Standard Thicknesses and Weights of Cast Iron Pipes

(12 feet in length exclusive of socket)

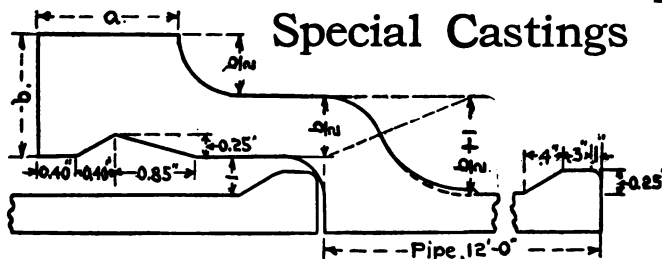
Adopted by the New England Water Works Association

TABLE No. 2

Nominal Diam. of Pipe	Class A		Class B		Class C		Class D		Class E		Class F		Class G		Class H		Class I		Class K	
	Thickness of Shell	Weight per Length	Thickness of Shell	Weight per Length	Thickness of Shell	Weight per Length	Thickness of Shell	Weight per Length	Thickness of Shell	Weight per Length	Thickness of Shell	Weight per Length	Thickness of Shell	Weight per Length	Thickness of Shell	Weight per Length	Thickness of Shell	Weight per Length	Thickness of Shell	Weight per Length
4	.34	200			.36	215			.39	230			.42	250			.45	265	.48	280
6	.38	330			.42	350			.46	380			.50	420			.54	445		
8	.42	475			.48	530			.53	575			.58	640			.63	690		
10	.47	650	.50	680	.53	720	.56	760	.60	810	.63	850	.67	890	.70	935				
12	.49	810	.53	855	.57	910	.61	970	.65	1,040	.69	1,100	.73	1,160	.77	1,220				
14	.53	1,010	.57	1,080	.61	1,150	.66	1,220	.70	1,310	.75	1,390	.79	1,460	.83	1,530				
16	.55	1,215	.60	1,300	.65	1,390	.70	1,490	.75	1,610	.80	1,710	.85	1,810	.90	1,900				
18	.57	1,400	.63	1,520	.69	1,660	.75	1,780	.80	1,910	.86	2,040								
20	.60	1,610	.66	1,760	.72	1,920	.79	2,090	.85	2,260	.92	2,420	HYDROSTATIC TEST PRESSURES 20" Diam. and Larger Less than 20" Diam. Class A Pipe 150 Lbs. per Sq. In. 300 Lbs. per Sq. In. Class B Pipe 200 Lbs. per Sq. In. 300 Lbs. per Sq. In. Class C Pipe 250 Lbs. per Sq. In. 300 Lbs. per Sq. In. Class D Pipe 300 Lbs. per Sq. In. 300 Lbs. per Sq. In. Class E to K, Pipe, inclusive 350 Lbs. per Sq. In. 350 Lbs. per Sq. In.							
24	.64	2,050	.72	2,290	.80	2,550	.88	2,780	.95	3,000	1.03	3,240								
30	.71	2,860	.81	3,230	.91	3,600	1.01	3,950	1.10	4,340	1.20	4,700								
36	.79	3,800	.90	4,270	1.02	4,840	1.13	5,310	1.25	5,900	1.37	6,400								
42	.87	4,920	1.00	5,560	1.13	6,270	1.27	6,970	1.40	7,720	1.53	8,360								
48	.95	6,130	1.10	6,970	1.25	7,920	1.40	8,780	1.55	9,740	1.70	10,600								
54	1.03	7,510	1.20	8,600	1.37	9,800	1.54	10,900	1.72	12,400	1.90	13,500								
60	1.10	8,900	1.30	10,300	1.50	11,900	1.70	13,300	1.90	15,100	2.10	16,500								



# General Dimensions of Pipes and Special Castings



Adopted by  
the New England  
Water Works  
Association

TABLE No. 1

Nominal Diam. Inches	Classes	Actual Outside Diam. Inches	Diam. of Sockets		Depth of Sockets		"A"	"B"
			Pipe Inches	Special Castings Inches	Pipe Inches	Special Castings Inches		
4	A-C-E	4.80	5.60	5.70	3.00	4.00	1.50	1.30
4	G-I-K	5.00	5.80	5.70	3.00	4.00	1.50	1.30
6	A-C-E	6.90	7.70	7.80	3.00	4.00	1.50	1.40
6	G-I	7.10	7.90	7.80	3.00	4.00	1.50	1.40
8	A-C-E	9.05	9.85	10.00	3.50	4.00	1.50	1.50
8	G-I	9.30	10.10	10.00	3.50	4.00	1.50	1.50
10	A-B-C-D	11.10	11.90	12.10	3.50	4.50	1.50	1.50
10	E-F-G-H	11.40	12.20	12.10	3.50	4.50	1.50	1.50
12	A-B-C-D	13.20	14.00	14.20	3.50	4.50	1.50	1.60
12	E-F-G-H	13.50	14.30	14.20	3.50	4.50	1.50	1.60
14	A-B-C-D	15.30	16.10	16.35	3.50	4.50	1.50	1.70
14	E-F-G-H	15.65	16.45	16.35	3.50	4.50	1.50	1.70
16	A-B-C-D	17.40	18.40	18.60	4.00	5.00	1.75	1.80
16	E-F-G-H	17.80	18.80	18.60	4.00	5.00	1.75	1.80
18	A-B	19.25	20.25	20.40	4.00	5.00	1.75	1.90
18	C-D	19.50	20.50	20.40	4.00	5.00	1.75	1.90
18	E-F	19.70	20.70	20.70	4.00	5.00	1.75	1.90
20	A-B	21.30	22.30	22.50	4.00	5.00	1.75	2.00
20	C-D	21.60	22.60	22.50	4.00	5.00	1.75	2.00
20	E-F	21.90	22.90	23.00	4.00	5.00	1.75	2.00
24	A-B	25.40	26.40	26.60	4.00	5.00	2.00	2.10
24	C-D	25.80	26.80	26.60	4.00	5.00	2.00	2.10
24	E-F	26.10	27.10	27.10	4.00	5.00	2.00	2.10
30	A-B	31.60	32.60	32.60	4.50	5.00	2.00	2.30
30	C-D	32.00	33.00	33.00	4.50	5.00	2.00	2.30
30	E-F	32.40	33.40	33.40	4.50	5.00	2.00	2.30
36	A-B	37.80	38.80	38.80	4.50	5.00	2.00	2.50
36	C-D	38.30	39.30	39.30	4.50	5.00	2.00	2.50
36	E-F	38.70	39.70	39.70	4.50	5.00	2.00	2.50
42	A-B	44.00	45.00	45.00	5.00	5.00	2.00	2.80
42	C-D	44.50	45.50	45.50	5.00	5.00	2.00	2.80
42	E-F	45.10	46.10	46.10	5.00	5.00	2.00	2.80
48	A-B	50.20	51.20	51.20	5.00	5.00	2.00	3.00
48	C-D	50.80	51.80	51.80	5.00	5.00	2.00	3.00
48	E-F	51.40	52.40	52.40	5.00	5.00	2.00	3.00
54	A-B	56.40	57.40	57.40	5.50	5.50	2.25	3.20
54	C-D	57.10	58.10	58.10	5.50	5.50	2.25	3.20
54	E-F	57.80	58.80	58.80	5.50	5.50	2.25	3.80
60	A-B	62.60	63.60	63.60	5.50	5.50	2.25	3.40
60	C-D	63.40	64.40	64.40	5.50	5.50	2.25	3.40
60	E-F	64.20	65.20	65.20	5.50	5.50	2.25	4.00

# Standard Dimensions of Pipe

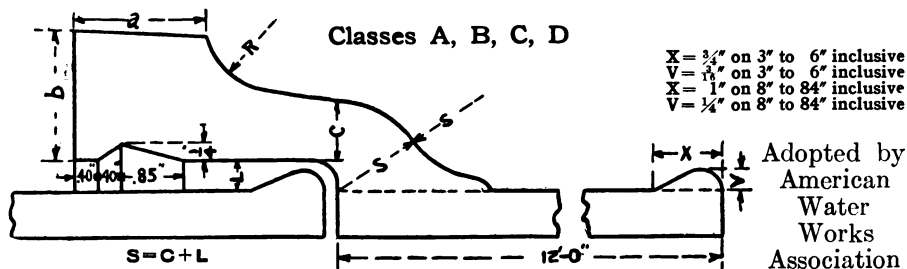


TABLE No. 1

Nominal Diam. Inches	Classes	Actual Outside Diam. Inches	Diam. of Sockets		Depth of Sockets		A	B	C
			Pipe Inches	Special Castings Inches	Pipe Inches	Special Castings Inches			
4	A	4.80	5.60	5.70	3.50	4.00	1.5	1.30	.65
4	B-C-D	5.00	5.80	5.70	3.50	4.00	1.5	1.30	.65
6	A	6.90	7.70	7.80	3.50	4.00	1.5	1.40	.70
6	B-C-D	7.10	7.90	7.80	3.50	4.00	1.5	1.40	.70
8	A-B	9.05	9.85	10.00	4.00	4.00	1.5	1.50	.75
8	C-D	9.30	10.10	10.00	4.00	4.00	1.5	1.50	.75
10	A-B	11.10	11.90	12.10	4.00	4.00	1.5	1.50	.75
10	C-D	11.40	12.20	12.10	4.00	4.00	1.5	1.60	.80
12	A-B	13.20	14.00	14.20	4.00	4.00	1.5	1.60	.80
12	C-D	13.50	14.30	14.20	4.00	4.00	1.5	1.70	.85
14	A-B	15.30	16.10	16.10	4.00	4.00	1.5	1.70	.85
14	C-D	15.65	16.45	16.45	4.00	4.00	1.5	1.80	.90
16	A-B	17.40	18.40	18.40	4.00	4.00	1.75	1.80	.90
16	C-D	17.80	18.80	18.80	4.00	4.00	1.75	1.90	1.00
18	A-B	19.50	20.50	20.50	4.00	4.00	1.75	1.90	.95
18	C-D	19.92	20.92	20.92	4.00	4.00	1.75	2.10	1.05
20	A-B	21.60	22.60	22.60	4.00	4.00	1.75	2.00	1.00
20	C-D	22.06	23.06	23.06	4.00	4.00	1.75	2.30	1.15
24	A-B	25.80	26.80	26.80	4.00	4.00	2.00	2.10	1.05
24	C-D	26.32	27.32	27.32	4.00	4.00	2.00	2.50	1.25
30	A	31.74	32.74	32.74	4.50	4.50	2.00	2.30	1.15
30	B	32.00	33.00	33.00	4.50	4.50	2.00	2.30	1.15
30	C	32.40	33.40	33.40	4.50	4.50	2.00	2.60	1.32
30	D	32.74	33.74	33.74	4.50	4.50	2.00	3.00	1.50
36	A	37.96	38.96	38.96	4.50	4.50	2.00	2.50	1.25
36	B	38.30	39.30	39.30	4.50	4.50	2.00	2.80	1.40
36	C	38.70	39.70	39.70	4.50	4.50	2.00	3.10	1.60
36	D	39.16	40.16	40.16	4.50	4.50	2.00	3.40	1.80
42	A	44.20	45.20	45.20	5.00	5.00	2.00	2.80	1.40
42	B	44.50	45.50	45.50	5.00	5.00	2.00	3.00	1.50
42	C	45.10	46.10	46.10	5.00	5.00	2.00	3.40	1.75
42	D	45.58	46.58	46.58	5.00	5.00	2.00	3.80	1.95
48	A	50.50	51.50	51.50	5.00	5.00	2.00	3.00	1.50
48	B	50.80	51.80	51.80	5.00	5.00	2.00	3.30	1.65
48	C	51.40	52.40	52.40	5.00	5.00	2.00	3.80	1.95
48	D	51.98	52.98	52.98	5.00	5.00	2.00	4.20	2.20
54	A	56.66	57.66	57.66	5.50	5.50	2.25	3.20	1.60
54	B	57.10	58.10	58.10	5.50	5.50	2.25	3.60	1.80
54	C	57.80	58.80	58.80	5.50	5.50	2.25	4.00	2.15
54	D	58.40	59.40	59.40	5.50	5.50	2.25	4.40	2.45
60	A	62.80	63.80	63.80	5.50	5.50	2.25	3.40	1.70
60	B	63.40	64.40	64.40	5.50	5.50	2.25	3.70	1.90
60	C	64.20	65.20	65.20	5.50	5.50	2.25	4.20	2.25
60	D	64.82	65.82	65.82	5.50	5.50	2.25	4.70	2.60
72	A	75.34	76.34	76.34	5.50	5.50	2.25	3.80	1.87
72	B	76.00	77.00	77.00	5.50	5.50	2.25	4.20	2.20
72	C	76.88	77.88	77.88	5.50	5.50	2.25	4.60	2.64
84	A	87.54	88.54	88.54	5.50	5.50	2.50	4.10	2.10
84	B	88.54	89.54	89.54	5.50	5.50	2.50	4.50	2.60

# Standard Thickness and Weights of Cast Iron Pipe

Adopted by American Water Works Association

Classes A, B, C, D

TABLE No. 2

Nominal Inside Diam. Ins.	Class A 100-Feet Head 43 Pounds Pressure			Class B 200-Feet Head 86 Pounds Pressure			Class C 300-Feet Head 130 Pounds Pressure			Class D 400-Feet Head 173 Pounds Pressure			Nominal Inside Diam. Ins.
	Thick- ness Inches	Weight per		Thick- ness Inches	Weight per		Thick- ness Inches	Weight per		Thick- ness Inches	Weight per		
		Foot	Length		Foot	Length		Foot	Length		Foot	Length	
4	.42	20.0	240	.45	21.7	260	.48	23.3	280	.52	25.0	300	4
6	.44	30.8	370	.48	33.3	400	.51	35.8	430	.55	38.3	460	6
8	.46	42.9	515	.51	47.5	570	.56	52.1	625	.60	55.8	670	8
10	.50	57.1	685	.57	63.8	765	.62	70.8	850	.68	76.7	920	10
12	.54	72.5	870	.62	82.1	985	.68	91.7	1,100	.75	100.0	1,200	12
14	.57	89.6	1,075	.66	102.5	1,230	.74	116.7	1,400	.82	129.2	1,550	14
16	.60	108.3	1,300	.70	125.0	1,500	.80	143.8	1,725	.89	158.3	1,900	16
18	.64	129.2	1,550	.75	150.0	1,800	.87	175.0	2,100	.96	191.7	2,300	18
20	.67	150.0	1,800	.80	175.0	2,100	.92	208.3	2,500	1.03	229.2	2,750	20
24	.76	204.2	2,450	.89	233.3	2,800	1.04	279.2	3,350	1.16	306.7	3,680	24
30	.88	291.7	3,500	1.03	333.3	4,000	1.20	400.0	4,800	1.37	450.0	5,400	30
36	.99	391.7	4,700	1.15	454.2	5,450	1.36	545.8	6,550	1.58	625.0	7,500	36
42	1.10	512.5	6,150	1.28	591.7	7,100	1.54	716.7	8,600	1.78	825.0	9,900	42
48	1.26	666.7	8,000	1.42	750.0	9,000	1.71	908.3	10,900	1.96	1,050.0	12,600	48
54	1.35	800.0	9,600	1.55	933.3	11,200	1.90	1,141.7	13,700	2.23	1,341.7	16,100	54
60	1.39	916.7	11,000	1.67	1,104.2	13,250	2.00	1,341.7	16,100	2.38	1,583.3	19,000	60
72	1.62	1,283.4	15,400	1.95	1,545.8	18,550	2.39	1,904.2	22,850	.....	.....	.....	72
84	1.72	1,633.4	19,600	2.22	2,104.2	25,250	.....	.....	.....	.....	.....	.....	84

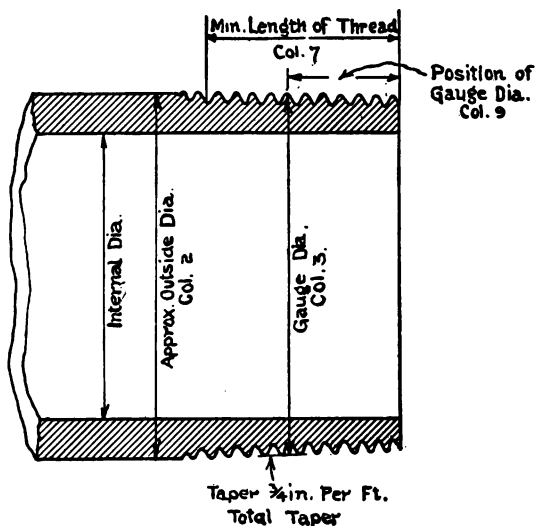
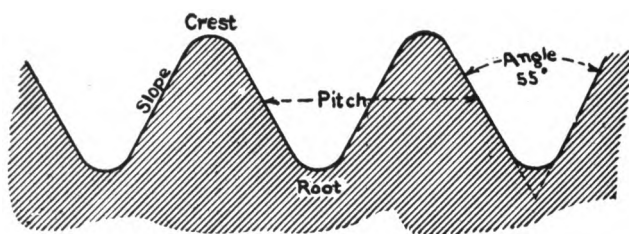
The above weights are per length to lay 12 feet, including standard sockets; proportionate allowance to be made for any variation

---

---

# British Standard Pipe Threads

Taken from Report of The Engineering Standards Committee,  
No. 21, Revised November, 1909



# British Standard Pipe Threads

Taken from Report of The Engineering Standards Committee,  
No. 21, Revised November, 1909

1	2	3	4	5	6	7	8	9
Nominal Bore of Tube	Approximate Outside Diameter of Black Tube	Gauge Diameter See Col. 9	Depth of Thread	Diameter at Bottom of Thread Measured at same Distance from End of Pipe as Gauge Diameter	Number of Threads per Inch	Length of Thread		Distance of Gauge Diameter from Pipe End (Class 1 Taper Screw)
						On Male End Min.	In Female End Min.	
$\frac{1}{8}$	$\frac{13}{32}$	.383	.0230	.337	28	$\frac{3}{8}$	$\frac{3}{4}$	$\frac{5}{32}$ ( .1563)
$\frac{1}{4}$	$\frac{17}{32}$	.518	.0335	.451	19	$\frac{7}{16}$	$\frac{7}{8}$	$\frac{3}{16}$ ( .1875)
$\frac{3}{8}$	$\frac{11}{16}$	.656	.0335	.589	19	$\frac{1}{2}$	1	$\frac{1}{4}$ ( .2500)
$\frac{1}{2}$	$\frac{27}{32}$	.825	.0455	.734	14	$\frac{5}{8}$	$1\frac{1}{4}$	$\frac{1}{4}$ ( .2500)
$\frac{3}{4}$	$1\frac{1}{16}$	1.041	.0455	.950	14	$\frac{3}{4}$	$1\frac{1}{2}$	$\frac{3}{8}$ ( .3750)
1	$1\frac{1}{4}$	1.309	.0580	1.193	11	$\frac{7}{8}$	$1\frac{3}{4}$	$\frac{3}{8}$ ( .3750)
$1\frac{1}{4}$	$1\frac{11}{16}$	1.650	.0580	1.534	11	1	2	$\frac{1}{2}$ ( .5000)
$1\frac{1}{2}$	$1\frac{13}{16}$	1.882	.0580	1.766	11	1	2	$\frac{1}{2}$ ( .5000)
2	$2\frac{3}{8}$	2.347	.0580	2.231	11	$1\frac{1}{8}$	$2\frac{1}{4}$	$\frac{5}{8}$ ( .6250)
$2\frac{1}{2}$	3	2.960	.0580	2.844	11	$1\frac{1}{4}$	$2\frac{1}{2}$	$\frac{11}{16}$ ( .6875)
3	$3\frac{1}{2}$	3.460	.0580	3.344	11	$1\frac{3}{8}$	$2\frac{3}{4}$	$\frac{3}{4}$ ( .7500)
$3\frac{1}{2}$	4	3.950	.0580	3.834	11	$1\frac{1}{2}$	3	$\frac{7}{8}$ ( .8750)
4	$4\frac{1}{2}$	4.450	.0580	4.334	11	$1\frac{5}{8}$	$3\frac{1}{4}$	1 ( 1.0000)
$4\frac{1}{2}$	5	4.950	.0580	4.834	11	$1\frac{5}{8}$	$3\frac{1}{4}$	1 ( 1.0000)
5	$5\frac{1}{2}$	5.450	.0580	5.334	11	$1\frac{3}{4}$	$3\frac{1}{2}$	$1\frac{1}{8}$ ( 1.1250)
6	$6\frac{1}{2}$	6.450	.0580	6.334	11	2	4	$1\frac{3}{8}$ ( 1.3750)
7	$7\frac{1}{2}$	7.450	.0640	7.322	10	$2\frac{1}{8}$	$4\frac{1}{4}$	$1\frac{3}{8}$ ( 1.3750)
8	$8\frac{1}{2}$	8.450	.0640	8.322	10	$2\frac{1}{4}$	$4\frac{1}{2}$	$1\frac{1}{2}$ ( 1.5000)
9	$9\frac{1}{2}$	9.450	.0640	9.322	10	$2\frac{1}{4}$	$4\frac{1}{2}$	$1\frac{1}{2}$ ( 1.5000)
10	$10\frac{1}{2}$	10.450	.0640	10.322	10	$2\frac{3}{8}$	$4\frac{3}{4}$	$1\frac{5}{8}$ ( 1.6250)
12	$12\frac{1}{2}$	12.450	.0800	12.290	8	$2\frac{1}{2}$	5	$1\frac{5}{8}$ ( 1.6250)
14	$14\frac{3}{4}$	14.680	.0800	14.520	8	$2\frac{3}{4}$	$5\frac{1}{2}$	$1\frac{3}{4}$ ( 1.7500)
15	$15\frac{3}{4}$	15.680	.0800	15.520	8	$2\frac{3}{4}$	$5\frac{1}{2}$	$1\frac{3}{4}$ ( 1.7500)
16	$16\frac{3}{4}$	16.680	.0800	16.520	8	$2\frac{7}{8}$	$5\frac{3}{4}$	$1\frac{7}{8}$ ( 1.8750)
18	$18\frac{3}{4}$	18.680	.0800	18.520	8	3	6	2 ( 2.0000)

# Dimensions of British Standard Pipe Flanges

For Steam Working Pressures up to 55 Pounds per Square Inch, and  
For Water Pressures up to 200 Pounds per Square Inch

This table does not apply to boiler feed pipes, or other water pipes subject to exceptional shocks.

TABLE No. 1

Internal Diameter of Pipe	Diameter of Flange	Diameter of Bolt Circle	Number of Bolts	Diameter of Bolts	Thickness of Flanges		
					Cast-Iron and Steel or Iron Welded on	Cast Steel and Bronze	Stamped or Forged Wrought Iron or Steel
Inches	Inches	Inches		Inches	Inches	Inches	Inches
1/2	3 3/4	2 5/8	4	1/2	1/2	3/8	3/16
3/4	4	2 7/8	4	1/2	1/2	3/8	3/16
1	4 1/2	3 1/4	4	1/2	1/2	3/8	3/16
1 1/4	4 3/4	3 7/8	4	1/2	5/8	1/2	1/4
1 1/2	5 1/4	3 7/8	4	1/2	5/8	1/2	1/4
2	6	4 1/2	4	5/8	3/4	9/16	5/16
2 1/2	6 1/2	5	4	5/8	3/4	9/16	5/16
3	7 1/4	5 3/4	4	5/8	3/4	9/16	5/16
3 1/2	8	6 1/2	4	5/8	3/4	9/16	5/16
4	8 1/2	7	4	5/8	7/8	11/16	3/8
4 1/2	9	7 1/2	8	5/8	7/8	11/16	7/16
5	10	8 1/4	8	5/8	7/8	11/16	1/2
6	11	9 1/4	8	5/8	7/8	11/16	1/2
7	12	10 1/4	8	5/8	1	3/4	1/2
8	13 1/4	11 1/2	8	5/8	1	3/4	1/2
9	14 1/2	12 3/4	8	5/8	1	3/4	5/8
10	16	14	8	3/4	1	3/4	5/8
12	18	16	12	3/4	1 1/8	7/8	5/8
14	20 3/4	18 1/2	12	7/8	1 1/4	1	3/4
15	21 3/4	19 1/2	12	7/8	1 1/4	1	3/4
16	22 3/4	20 1/2	12	7/8	1 1/4	1	3/4
18	25 1/4	23	12	7/8	1 3/8	1 1/8	7/8
20	27 3/4	25 1/4	16	7/8	1 1/2	1 1/4	1
24	32 1/2	29 3/4	16	1	1 5/8	1 3/8	1 1/8

Bolt-holes—For 1/2 inch and 5/8 inch bolts the diameters of the holes to be 1/16 inch larger than the diameters of the bolts, and for larger sizes of bolts, 1/8 inch. Bolt-holes to be drilled off center lines.

Taken from report of The Engineering Standards Committee.

# Dimensions of British Standard Pipe Flanges

For Working Pressures up to 125 Pounds, 225 Pounds and 325 Pounds per Square Inch

TABLE No. 2

Internal Diameter of Pipe	Diameter of Flange	Diameter of Bolt Circle	Number of Bolts	Diameter of Bolts		Thickness of Flanges					
						Cast-Iron and Steel or Iron Welded on			Steel (Cast or Riveted on) and Bronze		
	125 Lbs. 225 Lbs. 325 Lbs.	125 Lbs. 225 Lbs. 325 Lbs.	125 Lbs. 225 Lbs. 325 Lbs.	125 Lbs. 225 Lbs. 325 Lbs.	325 Lbs.	125 Lbs.	225 Lbs.	325 Lbs.	125 Lbs.	225 Lbs.	325 Lbs.
Inches	Inches	Inches		Inches	Inches	In.	In.	In.	In.	In.	In.
$\frac{1}{2}$	$3\frac{3}{4}$	$2\frac{5}{8}$	4	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{8}$	$\frac{7}{16}$	$\frac{5}{8}$
$\frac{3}{4}$	4	$2\frac{7}{8}$	4	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{8}$	$\frac{7}{16}$	$\frac{5}{8}$
1	$4\frac{3}{4}$	$3\frac{7}{16}$	4	$\frac{5}{8}$	$\frac{5}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{11}{16}$
$1\frac{1}{4}$	$5\frac{1}{4}$	$3\frac{7}{8}$	4	$\frac{5}{8}$	$\frac{5}{8}$	$\frac{5}{8}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{11}{16}$
$1\frac{1}{2}$	$5\frac{1}{2}$	$4\frac{1}{8}$	4	$\frac{5}{8}$	$\frac{5}{8}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	$\frac{1}{2}$	$\frac{9}{16}$	$\frac{3}{4}$
2	$6\frac{1}{2}$	5	4	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$	1	$\frac{5}{8}$	$\frac{11}{16}$	$\frac{7}{8}$
$2\frac{1}{2}$	$7\frac{1}{4}$	$5\frac{3}{4}$	8	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$	1	$\frac{5}{8}$	$\frac{11}{16}$	$\frac{7}{8}$
3	8	$6\frac{1}{2}$	8	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{11}{16}$	$\frac{3}{4}$	$\frac{3}{4}$	1
$3\frac{1}{2}$	$8\frac{1}{2}$	7	8	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{7}{8}$	1	$\frac{3}{4}$	$\frac{3}{4}$	1
4	9	$7\frac{1}{2}$	8	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{7}{8}$	$\frac{11}{16}$	$\frac{3}{4}$	$\frac{7}{8}$	$\frac{11}{16}$
$4\frac{1}{2}$	10	$8\frac{1}{4}$	8	$\frac{3}{4}$	$\frac{7}{8}$	1	$\frac{11}{16}$	$\frac{13}{16}$	$\frac{3}{4}$	$\frac{7}{8}$	$\frac{11}{16}$
5	11	$9\frac{1}{4}$	8	$\frac{3}{4}$	$\frac{7}{8}$	1	$\frac{11}{16}$	$\frac{11}{2}$	$\frac{7}{8}$	1	$\frac{11}{16}$
6	12	$10\frac{1}{4}$	12	$\frac{3}{4}$	$\frac{7}{8}$	1	$\frac{11}{16}$	$\frac{11}{2}$	$\frac{7}{8}$	1	$\frac{11}{16}$
7	$13\frac{1}{4}$	$11\frac{1}{2}$	12	$\frac{3}{4}$	$\frac{7}{8}$	1	$\frac{13}{16}$	$\frac{15}{8}$	$\frac{7}{8}$	1	$\frac{13}{16}$
8	$14\frac{1}{2}$	$12\frac{3}{4}$	12	$\frac{3}{4}$	$\frac{7}{8}$	$\frac{11}{8}$	$\frac{13}{16}$	$\frac{15}{8}$	1	$\frac{11}{8}$	$\frac{13}{8}$
9	16	14	12	$\frac{7}{8}$	1	$\frac{11}{8}$	$\frac{11}{2}$	$\frac{13}{4}$	1	$\frac{11}{4}$	$\frac{11}{2}$
10	17	15	12	$\frac{7}{8}$	1	$\frac{11}{8}$	$\frac{11}{2}$	$\frac{17}{8}$	1	$\frac{11}{4}$	$\frac{15}{8}$
12	$19\frac{1}{4}$	$17\frac{1}{4}$	16	$\frac{7}{8}$	1	$\frac{11}{4}$	$\frac{15}{8}$	2	$\frac{11}{8}$	$\frac{13}{8}$	$\frac{13}{4}$
14	$21\frac{3}{4}$	$19\frac{1}{2}$	16	1	$\frac{11}{8}$	$\frac{13}{8}$	$\frac{13}{4}$	$\frac{21}{8}$	$\frac{11}{4}$	$\frac{11}{2}$	$\frac{17}{8}$
15	$22\frac{3}{4}$	$20\frac{1}{2}$	16	1	$\frac{11}{8}$	$\frac{13}{8}$	$\frac{7}{8}$	$\frac{21}{8}$	$\frac{11}{4}$	$\frac{15}{8}$	$\frac{17}{8}$
16	24	$21\frac{3}{4}$	20	1	$\frac{11}{8}$	$\frac{13}{8}$	$\frac{17}{8}$	$\frac{21}{4}$	$\frac{11}{4}$	$\frac{15}{8}$	2
18	$26\frac{1}{2}$	24	20	$\frac{11}{8}$	$\frac{17}{4}$	$\frac{15}{2}$	2	$\frac{23}{8}$	$\frac{13}{8}$	$\frac{13}{4}$	$\frac{21}{8}$
20	29	$26\frac{1}{2}$	24	$\frac{11}{8}$	$\frac{17}{4}$	$\frac{11}{2}$	$\frac{21}{8}$	$\frac{23}{8}$	$\frac{11}{2}$	$\frac{17}{8}$	$\frac{21}{4}$
22	31	$28\frac{1}{2}$	24	$\frac{11}{8}$	$\frac{17}{4}$	$\frac{15}{8}$	$\frac{21}{4}$	$\frac{25}{8}$	$\frac{11}{2}$	2	$\frac{23}{8}$
24	$33\frac{1}{2}$	$30\frac{3}{4}$	24	$\frac{11}{4}$	$\frac{17}{8}$	$\frac{13}{4}$	$\frac{23}{8}$	$\frac{23}{4}$	$\frac{15}{8}$	$\frac{21}{8}$	$\frac{21}{2}$

Bolt-holes—For 1/2 inch and 5/8 inch bolts the diameters of the holes to be 1/16 inch larger than the diameters of the bolts, and for larger sizes of bolts, 1/8 inch. Bolt-holes to be drilled off center lines.

Taken from report of The Engineering Standards Committee.

---

---

# Steam

THE TEMPERATURE OF STEAM in contact with water depends upon the pressure under which it is generated. At the ordinary atmospheric pressure (14.7 pounds per square inch) its temperature is 212° F. As the pressure is increased, as by the steam being generated in a closed vessel, its temperature, and that of the water in its presence, increases.

SATURATED STEAM is steam of the temperature due to its pressure—not superheated.

SUPERHEATED STEAM is steam heated to a temperature above that due to its pressure.

DRY STEAM is steam which contains no moisture. It may be either saturated or superheated.

WET STEAM is steam containing intermingled moisture, mist or spray. It has the same temperature as dry saturated steam of the same pressure. Water introduced into the presence of superheated steam will flash into vapor until the temperature of the steam is reduced to that due to its pressure. Water in the presence of saturated steam has the same temperature as the steam. Should cold water be introduced, lowering the temperature of the whole mass, some of the steam will be condensed, reducing the pressure and temperature of the remainder, until an equilibrium is established.

GASEOUS STEAM—When saturated steam is superheated or surcharged with heat, it advances from the condition of saturation into that of gaseity. The gaseous state is only arrived at by considerably elevating the temperature, supposing the pressure remains the same. Steam thus sufficiently superheated is known as gaseous steam or steam gas.

Copied from "Kent."



# Properties of Saturated Steam

Gauge Pressure Lbs. per Sq. In.	Absolute Pressure Lbs. per Sq. In.	Temperature Fahrenheit	Total Heat Above 32° F.		Latent Heat L = H - h Heat Units	Relative Volume Vol. of Water at 39° F. = I.	Volume Cu. Ft. in One Lb. Steam	Weight of One Cu. Ft. Steam Lb.
			In the Water h Heat Units	In the Steam H Heat Units				
	1.0	102.1	70.09	1,113.1	1,043.0	20.623.0	334.23	.00299
	2.0	126.3	94.44	1,120.5	1,026.0	10.730.0	173.23	.00577
	3.0	141.6	109.9	1,125.1	1,015.3	7.325.0	117.98	.00848
	4.0	153.1	121.4	1,128.6	1,007.2	5.588.0	89.80	.01112
	5.0	162.3	130.7	1,131.4	1,000.7	4.530.0	72.50	.01373
	6.0	170.1	138.6	1,133.8	990.2	3.816.0	61.10	.01631
	7.0	176.9	145.4	1,135.9	980.5	3.302.0	53.00	.01887
	8.0	182.9	151.5	1,137.9	966.2	2.912.0	46.60	.02140
	9.0	188.3	156.9	1,139.4	952.4	2.607.0	41.82	.02391
	10.0	193.2	161.9	1,140.9	979.0	2.361.0	37.80	.02641
	11.0	197.8	166.5	1,142.3	975.8	2.159.0	34.61	.02889
	12.0	202.0	170.7	1,143.5	972.8	1.990.0	31.90	.03136
	13.0	205.9	174.7	1,144.7	970.0	1.846.0	29.58	.03381
	14.0	209.6	178.4	1,145.9	967.4	1.721.0	27.59	.03625
	15.0	213.0	180.9	1,146.6	965.7	1.646.0	26.36	.03794
0.304	15.0	213.0	181.9	1,146.9	965.0	1.614.0	25.87	.03868
5.3	20.0	227.9	197.0	1,151.5	954.4	1.231.0	19.72	.05070
10.3	25.0	240.0	209.3	1,155.1	945.8	998.4	15.99	.06253
15.3	30.0	250.2	219.7	1,158.3	938.9	841.3	13.48	.07420
20.3	35.0	259.2	228.8	1,161.0	932.2	727.9	11.66	.08576
25.3	40.0	267.1	236.9	1,163.4	926.5	642.0	10.28	.09721
30.3	45.0	274.3	244.3	1,165.6	921.3	574.7	9.21	.1086
35.3	50.0	280.9	251.0	1,167.6	916.6	520.5	8.34	.1198
40.3	55.0	286.9	257.2	1,169.4	912.3	475.9	7.63	.1311
45.3	60.0	292.5	262.9	1,171.2	908.2	438.5	7.03	.1422
50.3	65.0	297.8	268.3	1,172.8	904.5	406.6	6.53	.1533
55.3	70.0	302.7	273.4	1,174.3	900.9	379.3	6.09	.1643
60.3	75.0	307.4	278.2	1,175.7	897.5	355.5	5.71	.1753
65.3	80.0	311.8	282.7	1,177.0	894.3	334.5	5.37	.1862
70.3	85.0	316.0	287.0	1,178.3	891.3	315.9	5.07	.1971
75.3	90.0	320.0	291.2	1,179.6	888.4	299.4	4.81	.2080
80.3	95.0	323.9	295.1	1,180.7	885.6	284.5	4.57	.2188
85.3	100.0	327.6	298.9	1,181.8	882.9	271.1	4.36	.2296
90.3	105.0	331.1	302.6	1,182.9	880.3	258.9	4.16	.2403
95.3	110.0	334.5	306.1	1,184.0	877.9	247.8	3.98	.2510
100.3	115.0	337.8	309.5	1,185.0	875.5	237.6	3.82	.2617
105.3	120.0	341.0	312.8	1,185.9	873.2	228.3	3.67	.2724
110.3	125.0	344.1	316.0	1,186.9	870.9	219.6	3.53	.2830
115.3	130.0	347.1	319.1	1,187.8	868.7	211.6	3.41	.2936
120.3	135.0	350.0	322.1	1,188.7	866.6	204.2	3.29	.3042
125.3	140.0	352.8	325.0	1,189.5	864.6	197.3	3.18	.3147
130.3	145.0	355.5	327.8	1,190.4	862.6	190.9	3.07	.3253
135.3	150.0	358.2	330.6	1,191.2	860.6	184.9	2.98	.3358
140.3	155.0	360.7	333.2	1,192.0	858.7	179.2	2.89	.3463
145.3	160.0	363.3	335.9	1,192.7	856.9	173.9	2.80	.3567
150.3	165.0	365.7	338.4	1,193.5	855.1	169.0	2.72	.3671
155.3	170.0	368.2	340.9	1,194.2	853.3	164.3	2.65	.3775
160.3	175.0	370.5	343.4	1,194.9	851.6	159.8	2.58	.3879
165.3	180.0	372.8	345.8	1,195.7	849.9	155.6	2.51	.3983
170.3	185.0	375.1	348.1	1,196.3	848.2	151.6	2.45	.4087
175.3	190.0	377.3	350.4	1,197.0	846.6	147.8	2.39	.4191
180.3	195.0	379.5	352.7	1,197.7	845.0	144.2	2.33	.4296
185.3	200.0	381.6	354.9	1,198.3	843.4	140.8	2.27	.4400
190.3	205.0	383.7	357.1	1,199.0	841.9	137.5	2.22	.4503
195.3	210.0	385.7	359.2	1,199.6	840.4	134.5	2.17	.4605
200.3	215.0	387.7	361.3	1,200.2	838.9	131.5	2.12	.4707
205.3	220.0	389.7	362.2	1,200.8	838.6	128.7	2.06	.4852
215.3	230.0	393.6	366.2	1,202.0	835.8	123.3	1.98	.5061
225.3	240.0	397.3	370.0	1,203.1	833.1	118.5	1.90	.5270
235.3	250.0	400.9	373.8	1,204.2	830.5	114.0	1.83	.5478

Copied from "Kent."

# Pressure of Water

The pressure of water in pounds per square inch for every foot in height to 300 feet; and then by intervals to 1,000 feet head. By this table from the pounds pressure per square inch, the feet head is readily obtained; and *vice versa*.

Feet Head	Pressure per Square Inch	Feet Head	Pressure per Square Inch	Feet Head	Pressure per Square Inch	Feet Head	Pressure per Square Inch	Feet Head	Pressure per Square Inch
1	0.43	65	28.15	129	55.88	193	83.60	257	111.32
2	0.86	66	28.58	130	56.31	194	84.03	258	111.76
3	1.30	67	29.02	131	56.74	195	84.47	259	112.19
4	1.73	68	29.45	132	57.18	196	84.90	260	112.62
5	2.16	69	29.88	133	57.61	197	85.33	261	113.06
6	2.59	70	30.32	134	58.04	198	85.76	262	113.49
7	3.03	71	30.75	135	58.48	199	86.20	263	113.92
8	3.46	72	31.18	136	58.91	200	86.63	264	114.36
9	3.89	73	31.62	137	59.34	201	87.07	265	114.79
10	4.33	74	32.05	138	59.77	202	87.50	266	115.22
11	4.76	75	32.48	139	60.21	203	87.93	267	115.66
12	5.20	76	32.92	140	60.64	204	88.36	268	116.09
13	5.63	77	33.35	141	61.07	205	88.80	269	116.52
14	6.06	78	33.78	142	61.51	206	89.23	270	116.96
15	6.49	79	34.21	143	61.94	207	89.66	271	117.39
16	6.93	80	34.65	144	62.37	208	90.10	272	117.82
17	7.36	81	35.08	145	62.81	209	90.53	273	118.26
18	7.79	82	35.52	146	63.24	210	90.96	274	118.69
19	8.22	83	35.95	147	63.67	211	91.39	275	119.12
20	8.66	84	36.39	148	64.10	212	91.83	276	119.56
21	9.09	85	36.82	149	64.54	213	92.26	277	119.99
22	9.53	86	37.25	150	64.97	214	92.69	278	120.42
23	9.96	87	37.68	151	65.40	215	93.13	279	120.85
24	10.39	88	38.12	152	65.84	216	93.56	280	121.29
25	10.82	89	38.55	153	66.27	217	93.99	281	121.72
26	11.26	90	38.98	154	66.70	218	94.43	282	122.15
27	11.69	91	39.42	155	67.14	219	94.86	283	122.59
28	12.12	92	39.85	156	67.57	220	95.30	284	123.02
29	12.55	93	40.28	157	68.00	221	95.73	285	123.45
30	12.99	94	40.72	158	68.43	222	96.16	286	123.89
31	13.42	95	41.15	159	68.87	223	96.60	287	124.32
32	13.86	96	41.58	160	69.31	224	97.03	288	124.75
33	14.29	97	42.01	161	69.74	225	97.46	289	125.18
34	14.72	98	42.45	162	70.17	226	97.90	290	125.62
35	15.16	99	42.88	163	70.61	227	98.33	291	126.05
36	15.59	100	43.31	164	71.04	228	98.76	292	126.48
37	16.02	101	43.75	165	71.47	229	99.20	293	126.92
38	16.45	102	44.18	166	71.91	230	99.63	294	127.35
39	16.89	103	44.61	167	72.34	231	100.06	295	127.78
40	17.32	104	45.05	168	72.77	232	100.49	296	128.22
41	17.75	105	45.48	169	73.20	233	100.93	297	128.65
42	18.19	106	45.91	170	73.64	234	101.36	298	129.08
43	18.62	107	46.34	171	74.07	235	101.79	299	129.51
44	19.05	108	46.78	172	74.50	236	102.23	300	129.95
45	19.49	109	47.21	173	74.94	237	102.66	310	134.28
46	19.92	110	47.64	174	75.37	238	103.09	320	138.62
47	20.35	111	48.08	175	75.80	239	103.53	330	142.95
48	20.79	112	48.51	176	76.23	240	103.96	340	147.28
49	21.22	113	48.94	177	76.67	241	104.39	350	151.61
50	21.65	114	49.38	178	77.10	242	104.83	360	155.94
51	22.09	115	49.81	179	77.53	243	105.26	370	160.27
52	22.52	116	50.24	180	77.97	244	105.69	380	164.61
53	22.95	117	50.68	181	78.40	245	106.13	390	168.94
54	23.39	118	51.11	182	78.84	246	106.56	400	173.27
55	23.82	119	51.54	183	79.27	247	106.99	500	216.58
56	24.26	120	51.98	184	79.70	248	107.43	600	259.90
57	24.69	121	52.41	185	80.14	249	107.86	700	303.22
58	25.12	122	52.84	186	80.57	250	108.29	800	346.54
59	25.55	123	53.28	187	81.00	251	108.73	900	389.86
60	25.99	124	53.71	188	81.43	252	109.16	1,000	433.18
61	26.42	125	54.15	189	81.87	253	109.59	.....	.....
62	26.85	126	54.58	190	82.30	254	110.03	.....	.....
63	27.29	127	55.01	191	82.73	255	110.46	.....	.....
64	27.72	128	55.44	192	83.17	256	110.89	(62° Fahr.)	.....

# Table for the Conversion of the Centi- grade Thermometer into Degrees of the Fahrenheit Scale

F.	C.	F.	C.	F.	C.	F.	C.	F.	C.	F.	C.	F.	C.
-40	-40.0	26	- 3.3	92	33.3	158	70.0	224	106.7	290	143.3	360	182.2
-39	-39.4	27	- 2.8	93	33.9	159	70.6	225	107.2	291	143.9	370	187.8
-38	-38.9	28	- 2.2	94	34.4	160	71.1	226	107.8	292	144.4	380	193.3
-37	-38.3	29	- 1.7	95	35.0	161	71.7	227	108.3	293	145.0	390	198.9
-36	-37.8	30	- 1.1	96	35.6	162	72.2	228	108.9	294	145.6	400	204.4
-35	-37.2	31	- 0.6	97	36.1	163	72.8	229	109.4	295	146.1	410	210.0
-34	-36.7	32	0.0	98	36.7	164	73.3	230	110.0	296	146.7	420	215.6
-33	-36.1	33	+ 0.6	99	37.2	165	73.9	231	110.6	297	147.2	430	221.1
-32	-35.6	34	1.1	100	37.8	166	74.4	232	111.1	298	147.8	440	226.7
-31	-35.0	35	1.7	101	38.3	167	75.0	233	111.7	299	148.3	450	232.2
-30	-34.4	36	2.2	102	38.9	168	75.6	234	112.2	300	148.9	460	237.8
-29	-33.9	37	2.8	103	39.4	169	76.1	235	112.8	301	149.4	470	243.3
-28	-33.3	38	3.3	104	40.0	170	76.7	236	113.3	302	150.0	480	248.9
-27	-32.8	39	3.9	105	40.6	171	77.2	237	113.9	303	150.6	490	254.4
-26	-32.2	40	4.4	106	41.1	172	77.8	238	114.4	304	151.1	500	260.0
-25	-31.7	41	5.0	107	41.7	173	78.3	239	115.0	305	151.7	510	265.6
-24	-31.1	42	5.6	108	42.2	174	78.9	240	115.6	306	152.2	520	271.1
-23	-30.6	43	6.1	109	42.8	175	79.4	241	116.1	307	152.8	530	276.7
-22	-30.0	44	6.7	110	43.3	176	80.0	242	116.7	308	153.3	540	282.2
-21	-29.4	45	7.2	111	43.9	177	80.6	243	117.2	309	153.9	550	287.8
-20	-28.9	46	7.8	112	44.4	178	81.1	244	117.8	310	154.4	560	293.3
-19	-28.3	47	8.3	113	45.0	179	81.7	245	118.3	311	155.0	570	298.9
-18	-27.8	48	8.9	114	45.6	180	82.2	246	118.9	312	155.6	580	304.4
-17	-27.2	49	9.4	115	46.1	181	82.8	247	119.4	313	156.1	590	310.0
-16	-26.7	50	10.0	116	46.7	182	83.3	248	120.0	314	156.7	600	315.6
-15	-26.1	51	10.6	117	47.2	183	83.9	249	120.6	315	157.2	610	321.1
-14	-25.6	52	11.1	118	47.8	184	84.4	250	121.1	316	157.8	620	326.7
-13	-25.0	53	11.7	119	48.3	185	85.0	251	121.7	317	158.3	630	332.2
-12	-24.4	54	12.2	120	48.9	186	85.6	252	122.2	318	158.9	640	337.8
-11	-23.9	55	12.8	121	49.4	187	86.1	253	122.8	319	159.4	650	343.3
-10	-23.3	56	13.3	122	50.0	188	86.7	254	123.3	320	160.0	660	348.9
-9	-22.8	57	13.9	123	50.6	189	87.2	255	123.9	321	160.6	670	354.4
-8	-22.2	58	14.4	124	51.1	190	87.8	256	124.4	322	161.1	680	360.0
-7	-21.7	59	15.0	125	51.7	191	88.3	257	125.0	323	161.7	690	365.6
-6	-21.1	60	15.6	126	52.2	192	88.9	258	125.6	324	162.2	700	371.1
-5	-20.6	61	16.1	127	52.8	193	89.4	259	126.1	325	162.8	710	376.7
-4	-20.0	62	16.7	128	53.3	194	90.0	260	126.7	326	163.3	720	382.2
-3	-19.4	63	17.2	129	53.9	195	90.6	261	127.2	327	163.9	730	387.8
-2	-18.9	64	17.8	130	54.4	196	91.1	262	127.8	328	164.4	740	393.3
-1	-18.3	65	18.3	131	55.0	197	91.7	263	128.3	329	165.0	750	398.9
0	-17.8	66	18.9	132	55.6	198	92.2	264	128.9	330	165.6	760	404.4
+ 1	-17.2	67	19.4	133	56.1	199	92.8	265	129.4	331	166.1	770	410.0
2	-16.7	68	20.0	134	56.7	200	93.3	266	130.0	332	166.7	780	415.6
3	-16.1	69	20.6	135	57.2	201	93.9	267	130.6	333	167.2	790	421.1
4	-15.6	70	21.1	136	57.8	202	94.4	268	131.1	334	167.8	800	426.7
5	-15.0	71	21.7	137	58.3	203	95.0	269	131.7	335	168.3	810	432.2
6	-14.4	72	22.2	138	58.9	204	95.6	270	132.2	336	168.9	820	437.8
7	-13.9	73	22.8	139	59.4	205	96.1	271	132.8	337	169.4	830	443.3
8	-13.3	74	23.3	140	60.0	206	96.7	272	133.3	338	170.0	840	448.9
9	-12.8	75	23.9	141	60.6	207	97.2	273	133.9	339	170.6	850	454.4
10	-12.2	76	24.4	142	61.1	208	97.8	274	134.4	340	171.1	860	460.0
11	-11.7	77	25.0	143	61.7	209	98.3	275	135.0	341	171.7	870	465.6
12	-11.1	78	25.6	144	62.2	210	98.9	276	135.6	342	172.2	880	471.1
13	-10.6	79	26.1	145	62.8	211	99.4	277	136.1	343	172.8	890	476.7
14	-10.0	80	26.7	146	63.3	212	100.0	278	136.7	344	173.3	900	482.2
15	-9.4	81	27.2	147	63.9	213	100.6	279	137.2	345	173.9	910	487.8
16	-8.9	82	27.8	148	64.4	214	101.1	280	137.8	346	174.4	920	493.3
17	-8.3	83	28.3	149	65.0	215	101.7	281	138.3	347	175.0	930	498.9
18	-7.8	84	28.9	150	65.6	216	102.2	282	138.9	348	175.6	940	504.4
19	-7.2	85	29.4	151	66.1	217	102.8	283	139.4	349	176.1	950	510.0
20	-6.7	86	30.0	152	66.7	218	103.3	284	140.0	350	176.7	960	515.6
21	-6.1	87	30.6	153	67.2	219	103.9	285	140.6	351	177.2	970	521.1
22	-5.6	88	31.1	154	67.8	220	104.4	286	141.1	352	177.8	980	526.7
23	-5.0	89	31.7	155	68.3	221	105.0	287	141.7	353	178.3	990	532.2
24	-4.4	90	32.2	156	68.9	222	105.6	288	142.2	354	178.9	1,000	537.8
25	-3.9	91	32.8	157	69.4	223	106.1	289	142.8	355	179.4	1,010	543.3

Copied from "Kent"

# Safe Loads for Wrought Pipe Columns

## Standard Wrought Pipe

DIAMETER		AREA OF METAL	SAFE LOAD IN POUNDS FOR DIFFERENT HEIGHTS OF COLUMNS			
Inside	Outside		6 Feet	8 Feet	10 Feet	12 Feet
2	2.37	1.27	10,300	9,000	7,700	6,500
2½	2.87	1.56	13,500	12,200	10,800	9,500
3	3.50	2.55	23,000	21,300	19,600	17,700
3½	4.00	2.95	27,300	25,800	24,100	22,300
4	4.50	3.33	31,300	29,900	28,300	26,600
5	5.56	4.65	44,700	43,300	41,800	40,000
6	6.62	6.14	59,600	58,400	56,800	55,000
7	7.60	6.89	67,300	66,200	64,900	63,400
8	8.65	8.50	83,600	82,400	81,300	79,700

## Extra Heavy Wrought Pipe

2	2.37	1.45	11,700	10,100	8,700	7,300
2½	2.87	2.24	19,200	17,200	15,200	13,300
3	3.50	3.06	27,500	25,500	23,400	21,200
3½	4.00	3.76	34,600	32,700	30,400	28,000
4	4.50	4.44	41,600	39,700	37,500	35,200
5	5.56	6.11	58,600	56,800	54,600	52,200
6	6.62	8.44	82,000	80,200	77,900	75,400

# Table of Weights and Measures

## Long Measure

12 inches.....	1 foot
3 feet.....	1 yard
2 yards.....	1 fathom
16½ feet.....	1 rod
4 rods.....	1 chain
10 chains.....	1 furlong
8 furlongs.....	1 mile
3 miles.....	1 league

## Square Measure

9 square feet.....	1 square yard
30¼ square yards.....	1 square rod
40 square rods.....	1 square rood
8 square roods.....	1 square acre
640 acres.....	1 square mile
An acre is 208.71 feet square.	

## Dry Measure

2 pints.....	1 quart
8 quarts.....	1 peck
4 pecks.....	1 bushel

## Liquid Measure

4 gills.....	1 pint
2 pints.....	1 quart
4 quarts.....	1 gallon

## Avoirdupois Weight

16 drams.....	1 ounce
16 ounces.....	1 pound
25 pounds.....	1 quarter
4 quarters.....	1 hundred
20 hundreds.....	1 ton

## Apothecaries Weight

20 grains.....	1 scruple
3 scruples.....	1 dram
8 drams.....	1 ounce
12 ounces.....	1 pound

## Time Measure

60 seconds.....	1 minute
60 minutes.....	1 hour
24 hours.....	1 day
7 days.....	1 week
52 weeks.....	} 1 year
12 calendar months.....	
365 days.....	

## Troy Weight

24 grains.....	1 pennyweight
20 pennyweights.....	1 ounce
12 ounces.....	1 pound

## Cubic Measure

1728 cubic inches.....	1 cubic foot
27 cubic feet.....	1 cubic yard
16 cubic feet.....	1 cord foot
8 cord feet or.....	} 1 cord
128 cubic feet.....	

## Land Measure

7.92 inches.....	1 link
25 links.....	1 rod
4 rods.....	1 chain
80 chains.....	1 mile

## Circular Measure

60 seconds.....	1 minute
60 minutes.....	1 degree
30 degrees.....	1 sign
60 degrees.....	1 sextant
90 degrees.....	1 quadrant
360 degrees.....	1 circle

## Table of Quantities

12 units.....	1 dozen
12 dozen.....	1 gross
20 units.....	1 score
24 sheets.....	1 quire
20 quires.....	1 ream

## General Measure

A mile.....	5280 feet
A cubit.....	2 feet
A pace.....	3 feet
A palm.....	3 inches
A hand.....	4 inches
A span.....	10⅞ inches

Wells and cisterns hold for each foot in depth:

Diam.	Gallons
2 feet.....	23
3 feet.....	53
4 feet.....	94
5 feet.....	147
6 feet.....	211
7 feet.....	288
8 feet.....	376

# Table of Equation of Pipes

## Standard Steam and Gas Pipes

Dia. In.	1/2	3/4	1	1 1/2	2	2 1/2	3	4	5	6	7	8	9	10	11	12
1/2		2.27	4.88	15.8	31.7	52.9	96.9	205	377	620	918	1,292	1,767	2,488	3,014	3,786
3/4	2.60		2.05	6.97	14.0	23.3	42.5	90.4	166	273	405	569	779	1,096	1,328	1,668
1	7.55	2.90		3.45	6.82	11.4	20.9	44.1	81.1	133	198	278	380	536	649	815
1 1/2	24.2	9.30	3.20		1.26	3.34	6.13	13.0	23.8	39.2	58.1	81.7	112	157	190	239
2	54.8	21.0	7.25	2.26		1.67	3.06	6.47	11.9	19.6	29.0	40.8	55.8	78.5	95.1	119
2 1/2	102	39.4	13.6	4.23	1.87		1.83	3.87	7.12	11.7	17.4	24.4	33.4	47.0	56.9	71.5
3	170	65.4	22.6	7.03	3.11	1.66		2.12	3.89	6.39	9.48	13.3	20.9	23.7	31.2	39.1
4	376	144	49.8	15.5	6.87	3.67	2.21		1.84	3.02	4.48	6.30	8.61	12.1	14.7	18.5
5	686	263	90.9	28.3	12.5	6.70	4.03	1.83		1.65	2.44	3.43	4.69	6.60	8.0	10.0
6	1,116	429	148	46.0	20.4	10.9	6.56	2.97	1.63		1.48	2.09	2.85	4.02	4.86	6.11
7	1,707	656	226	70.5	31.2	16.6	10.0	4.54	2.49	1.51		1.41	1.93	2.71	3.28	4.12
8	2,435	936	322	101	44.5	23.8	14.3	6.48	3.54	2.18	1.43		1.35	1.93	2.33	2.92
9	3,335	1,281	440	137	60.8	32.5	19.5	8.85	4.85	2.98	1.95	1.37		1.41	1.71	2.14
10	4,393	1,688	582	181	80.4	42.9	25.8	11.7	6.40	3.93	2.57	1.80	1.32		1.21	1.52
11	5,642	2,168	747	233	103	55.1	33.1	15.0	8.22	5.05	3.31	2.32	1.70	1.28		1.26
12	7,087	2,723	938	293	129	69.2	41.6	18.8	10.3	6.34	4.15	2.91	2.13	1.61	1.26	

This table gives the number of pipes of one size required to equal in delivery other larger pipes of same length and under same conditions. The upper portion above the diagonal line pertains to "Standard" steam and gas pipes, while the lower portion is for pipes of the actual internal diameter given. The figure given in the table opposite the intersection of any two sizes is the number of the smaller sized pipes required to equal one of the larger. Thus, it requires 29 standard 2 inch pipes to equal one standard 7 inch pipe.

# Fusing Point and Character of Metals

Metals	Melts ° F.	Specific gravity	Color	Character	Elec. Cond. Silver 100	Lbs. Weight per cu. in.
Aluminum....	1,157	2.56	Blue white...	Malleable..	63.00	.0924
Antimony....	842	6.71	Blue white...	Brittle....	3.59	.2424
Arsenic.....	Vaporizes	5.67	Steel gray...	Brittle....	4.90	.2048
Barium.....	2,192	3.75	Pale yellow..	Malleable..	30.61	.1355
Bismuth.....	485	9.80	Gray white..	Brittle....	1.40	.3540
Boron.....	4,500	2.68	Olive green..	Hard.....	.....	.0967
Cadmium.....	576	8.60	Tin white....	Malleable..	24.38	.3107
Caesium.....	78.8	1.88	Tin white....	Soft.....	20.00	.0679
Calcium.....	1,472	1.57	Yellow.....	Malleable..	21.77	.0567
Cerium.....	1,246	6.68	White.....	Malleable..	15.75	.2413
Chromium....	4,000	6.80	Gray white..	Brittle....	16.00	.2457
Cobalt.....	2,932	8.50	Pink white...	Malleable..	16.93	.3071
Copper.....	1,929	8.82	Pink red....	Malleable..	97.61	.3186
Didymium....	1,346	6.54	Gray.....	Malleable..	4.32	.2363
Erbium.....	1,223	4.97	Dark gray...	Malleable..	31.50	.1794
Gallium.....	86.1	5.90	Silver white..	Malleable..	34.51	.2130
Germanium...	1,678	5.47	Gray white..	Brittle....	15.07	.1975
Glucinum....	1,798	1.70	Silver white..	Malleable..	31.13	.0748
Gold.....	1,913	19.32	Yellow.....	Malleable..	76.61	.6979
Indium.....	349	7.42	White.....	Malleable..	26.98	.2681
Iridium.....	3,217	22.42	White.....	Malleable..	13.52	.8099
Iron, pure...	2,912	7.02	White.....	Malleable..	14.57	.2840
Lanthanum...	1,318	6.20	White.....	Malleable..	47.07	.2240
Lead.....	618	11.37	Blue white...	Soft.....	8.42	.4108
Lithium.....	356	0.59	White.....	Malleable..	18.68	.0213
Magnesium...	1,200	1.74	Blue white...	Malleable..	39.44	.0629
Manganese...	3,452	8.00	Gray white...	Brittle....	15.75	.2890
Mercury.....	— 39	13.59	Blue white...	Fluid.....	1.75	.4909
Molybdenum..	4,000	8.80	Silver white..	Brittle....	17.60	.3107
Nickel.....	2,912	8.80	Yellow white..	Malleable..	12.89	.3179
Niobium.....	3,978	6.27	Steel gray...	Malleable..	5.13	.2265
Osmium.....	4,532	22.48	White blue...	Malleable..	13.98	.8121
Palladium....	2,732	11.50	White.....	Malleable..	12.00	.4100
Platinum.....	3,227	21.50	White.....	Malleable..	14.43	.7767
Potassium....	144	0.87	Blue white...	Soft.....	19.62	.0314
Rhodium.....	3,632	12.10	White.....	Brittle....	12.61	.4371
Rubidium....	101	1.52	White.....	Soft.....	20.46	.0549
Ruthenium...	3,272	12.26	White.....	Brittle....	13.22	.4429
Silver.....	1,733	10.53	White.....	Malleable..	100.00	.3805
Silicium.....	3,118	2.33	Gray black...	Brittle....	.04	.0841
Sodium.....	194	0.97	Blue white...	Soft.....	31.98	.0350
Strontium....	1,472	2.58	Pale yellow..	Malleable..	6.60	.0918
Steel.....	2,532	7.85	White.....	Malleable..	12.00	.2837
Tantalum....	4,300	10.80	Steel gray...	Malleable..	54.63	.3902
Tellurium....	977	6.25	White.....	Brittle....	.0007	.2250
Thallium....	550	11.85	White.....	Soft.....	9.13	.4281
Thorium.....	1,100	11.10	White.....	Brittle....	8.60	.4000
Tin.....	446	7.29	Silver white..	Malleable..	14.39	.2634
Titanium....	4,400	5.30	Iron gray...	Malleable..	13.73	.1915
Tungsten....	4,000	17.60	White.....	Brittle....	14.00	.6900
Uranium.....	1,650	18.70	Steel white...	Malleable..	16.47	.6755
Vanadium....	4,278	5.50	Silver white..	Malleable..	4.95	.1987
Yttrium.....	1,250	....	Yellow white	Brittle....	30.11	.2047
Zinc.....	779	7.15	Blue white...	Malleable..	29.57	.2479
Zirconium....	3,000	4.15	Gray white...	Brittle....	.05	.1499

---

---

## Mensuration of Surfaces and Volumes

Area of rectangle = length  $\times$  breadth.

Area of triangle = base  $\times \frac{1}{2}$  perpendicular height.

Diameter of circle = radius  $\times 2$ .

Circumference of circle = diameter  $\times 3.1416$ .

Area of circle = square of diameter  $\times .7854$ .

Area of sector of circle =  $\frac{\text{area of circle} \times \text{number of degrees in arc}}{360}$

Area of surface of cylinder = circumference  $\times$  length + area of two ends.

To find the diameter of circle having given area: Divide the area by .7854, and extract the square root.

To find the volume of a cylinder: Multiply the area of the section in square inches by the length in inches = the volume in cubic inches. Cubic inches divided by 1728 = volume in cubic feet.

Surface of a sphere = square of diameter  $\times 3.1416$ .

Solidity of a sphere = cube of diameter  $\times .5236$ .

Side of an inscribed cube = radius of a sphere  $\times 1.1547$ .

Area of the base of a pyramid or cone, whether round, square or triangular, multiplied by one-third of its height = the solidity.

Diameter  $\times .8862$  = side of an equal square.

Diameter  $\times .7071$  = side of an inscribed square.

Radius  $\times 6.2832$  = circumference.

Circumference =  $3.5446 \times \sqrt{\text{Area of circle}}$ .

Diameter =  $1.1283 \times \sqrt{\text{Area of circle}}$ .

Length of arc = No. of degrees  $\times .017453$  radius.

Degrees in arc whose length equals radius =  $57.2958^\circ$ .

Length of an arc of  $1^\circ$  = radius  $\times .017453$ .

Length of an arc of 1 Min. = radius  $\times .0002909$ .

Length of an arc of 1 Sec. = radius  $\times .0000048$ .

$p$  = Proportion of circumference to diameter = 3.1415926.

$p^2$  = 9.8696044.

$\sqrt{p}$  = 1.7724538.

Log.  $p$  = 0.49715.

$1/p$  = 0.31831.

$1/360$  = 0.002778.

$360/p$  = 114.59.

Lineal feet  $\times .00019$  = miles.

Lineal yards  $\times .0006$  = miles.



---

---

# Mensuration of Surfaces and Volumes

## Continued

Square inches  $\times .007$  = square feet.

Square feet  $\times .111$  = square yards.

Square yards  $\times .0002067$  = acres.

Acres  $\times 4840.$  = square yards.

Cubic inches  $\times .00058$  = cubic feet.

Cubic feet  $\times .03704$  = cubic yards.

Circular inches  $\times .00546$  = square feet.

Cylindrical inches  $\times .0004546$  = cubic feet.

Cylindrical feet  $\times .02901$  = cubic yards.

Links  $\times .22$  = yards

Links  $\times .66$  = feet.

Feet  $\times 1.5$  = links.

Width in chains  $\times 8$  = acres per mile.

183.346 circular inches = 1 square foot.

2,200 cylindrical inches = 1 cubic foot.

Cubic feet  $\times 7.48$  = U. S. gallons.

Cubic inches  $\times .004329$  = U. S. gallons.

U. S. gallons  $\times .13367$  = cubic feet.

U. S. gallons  $\times 231$  = cubic inches.

Cubic feet  $\times .8036$  = U. S. bushel.

Cubic inches  $\times .000466$  = U. S. bushel.

Cylindrical feet of water  $\times 6$  = U. S. gallons.

Pounds avoirdupois  $\times .009$  = hundredweight (112).

Pounds avoirdupois  $\times .00045$  = tons (2,240).

Cubic feet of water  $\times 62.5$  = pounds avoirdupois.

Cubic inch of water  $\times .03617$  = pounds avoirdupois.

Cylindrical feet of water  $\times 49.1$  = pounds avoirdupois.

Cylindrical inch of water  $\times .02842$  = pounds avoirdupois.

13.44 U. S. gallons of water = 1 hundredweight.

268.8 U. S. gallons of water = 1 ton.

1.8 cubic feet of water = 1 hundredweight.

35.88 cubic feet of water = 1 ton.

Column of water, 12 inches high and 1 inch in diameter = .341 pound.

U. S. bushel  $\times .0495$  = cubic yards.

U. S. bushel  $\times 1.2446$  = cubic feet.

U. S. bushel  $\times 2150.42$  = cubic inches.

THESE ARE ALL APPROXIMATE

# Weight of Materials

## Metals and Alloys

MATERIAL	Specific Gravity	Weight in Lbs. of One		Cu. Inches in One Lb.
		Cu. Foot.	Cu. Inch	
Aluminum—Cast.....	2.569	160	.093	10.80
Aluminum—Wrought.....	2.681	167	.097	10.35
Aluminum—Bronze.....	7.787	485	.281	3.56
Antimony.....	6.712	418	.242	4.13
Arsenic.....	5.748	358	.207	4.83
Bismuth.....	9.827	612	.354	2.82
Brass—Cast.....	from	7.868	490	3.53
	to	8.430	.304	3.29
	average	8.109	.292	3.42
Brass—Muntz—Metal.....	8.221	512	.296	3.37
Brass—Naval (Rolled).....	8.510	530	.307	3.26
Brass—Sheet.....	8.462	527	.305	3.28
Brass—Wire.....	8.558	533	.308	3.24
Bronze (Gun-metal).....	from	8.478	.306	3.27
	to	8.863	.319	3.13
	average	8.735	.315	3.18
Copper—Cast.....	8.622	537	.311	3.22
Copper—Hammered.....	8.927	556	.322	3.11
Copper—Sheet.....	8.815	549	.318	3.15
Copper—Wire.....	8.895	554	.321	3.12
Gold (Pure).....	19.316	1,203	.696	1.44
Gold Standard 22 Carat Fine.....	17.502	1,090	.631	1.59
(Gold 11—Copper 1)				
Iron—Cast.....	from	6.904	430	4.02
	to	7.386	.266	3.76
	average	7.209	.260	3.85
Iron—Wrought.....	from	7.547	.272	3.56
	to	7.803	.281	3.68
	average	7.707	.278	3.60
Lead—Cast.....	11.368	708	.410	2.44
Lead—Sheet.....	11.432	712	.412	2.43
Manganese.....	8.012	499	.289	3.46
Nickel—Cast.....	8.285	516	.299	3.35
Nickel—Rolled.....	8.687	541	.313	3.19
Platinum.....	21.516	1,340	.775	1.29
Silver.....	10.517	655	.379	2.64
Steel.....	from	7.820	.282	3.55
	to	7.916	.285	3.51
	average	7.868	.284	3.53
Tin.....	7.418	462	.267	3.74
White Metal (Babbitt's).....	7.322	456	.264	3.79
Zinc—Cast.....	6.872	428	.248	4.04
Zinc—Sheet.....	7.209	449	.260	3.85

## Woods, Dry

MATERIAL	Weight in Lbs. of One Cu. Ft.	MATERIAL	Weight in Lbs. of One Cu. Ft.
Ash.....	43-53	Fir, Spruce.....	30-44
Beech.....	43-53	Greenheart.....	70
Birch.....	40-46	Hornbeam.....	47
Boxwood.....	57-83	Larch.....	31-37
Cork.....	15	Lignum-vitae.....	83
Ebony.....	70-83	Mahogany—Honduras.....	35
Elm.....	34-45	Mahogany—Spanish.....	53

# Weight of Materials—Continued

## Woods, Dry

MATERIAL	Weight in Lbs. of One Cu. Ft.	MATERIAL	Weight in Lbs. of One Cu. Ft.
Oak—American Red.....	54	Pine—White.....	27-34
Oak—English.....	48-58	Pine—Yellow.....	29-41
Pine—Red.....	30-44	Teak.....	41-55

## Stones, Earth, Etc.

MATERIAL	Weight in Lbs. of One Cu. Ft.	MATERIAL	Weight in Lbs. of One Cu. Ft.
Asphaltum.....	64-112	Grindstone.....	134
Brick—Common.....	100-125	Lime—Quick.....	52
Brick—Fire.....	137-150	Limestone and Marbles.....	150-179
Cement—Portland.....	80-90	Mortar—hardened.....	88-188
Clay.....	120	Mud—Dry and Close.....	80-110
Concrete.....	120-140	Mud—Wet and Fluid.....	104-120
Earth.....	77-120	Sand—Dry.....	88-110
Glass—Crown.....	156	Sand—Wet.....	118-129
Glass—Flint.....	187	Sandstone.....	130-170
Glass—Plate.....	169	Victoriastone (Crushed Granite) }	144
Granite.....	164-175	Portland Cement, Silica.....	
Gravel.....	90-125		

## How to Ascertain Horsepower of Boilers

Standard adopted by American Society of Mechanical Engineers is 30 pounds of water evaporated into dry steam per hour from temperature of feed water 100° Fahrenheit, into steam of 70 pounds pressure.

Compound engines will develop a horsepower on 15 pounds of water.

Single condensing engines will develop a horsepower on 18 to 22 pounds of water.

Automatic non-condensing engines will develop a horsepower on 28 to 32 pounds of water.

Slide-valve throttle-governing engines will develop a horsepower on 40 to 60 pounds of water.

Steam turbines will develop a horsepower on 15 pounds of water.

## Horsepower of an Engine

a = Area of the piston in square inches.

p = Mean effective pressure of the steam on the piston pounds per square inch.

v = Velocity of piston feet per minute.

$$\text{Then H. P.} = \frac{a \times p \times v}{33.000}$$

The mean pressure in the cylinder when cutting off at

- $\frac{1}{4}$  stroke = boiler pressure multiplied by .597
- $\frac{1}{3}$  stroke = boiler pressure multiplied by .670
- $\frac{2}{8}$  stroke = boiler pressure multiplied by .743
- $\frac{1}{2}$  stroke = boiler pressure multiplied by .847
- $\frac{5}{8}$  stroke = boiler pressure multiplied by .919
- $\frac{3}{4}$  stroke = boiler pressure multiplied by .937
- $\frac{7}{8}$  stroke = boiler pressure multiplied by .966
- $\frac{7}{8}$  stroke = boiler pressure multiplied by .992

---

---

# The Metric System

The Metric System is based on the Meter which was designed to be one ten-millionth (1-10,000,000) part of the earth's meridian, passing through Dunkirk and Formentera. Later investigations, however, have shown that the Meter exceeds one ten-millionth part by almost one part in 6400. The value of the Meter as authorized by the United States Government, is 39.37 inches. The Metric system was legalized by the United States Government in 1866.

The three principal units are the Meter, the unit of length; the Liter, the unit of capacity, and the Gram, the unit of weight. Multiples of these are obtained by prefixing the Greek words: deka (10), hekto (100), and kilo (1000). Divisions are obtained by prefixing the Latin words: deci (1-10), centi (1-100), and milli (1-1000). Abbreviations of the multiples begin with a capital letter, and of the divisions with a small letter, as in the following tables:

## Measures of Length

10 millimeters (mm).....	= 1 centimeter.....	cm
10 centimeters.....	= 1 decimeter.....	dm
10 decimeters.....	= 1 meter.....	m
10 meters.....	= 1 dekameter.....	Dm
10 dekameters.....	= 1 hektometer.....	Hm
10 hektometers.....	= 1 kilometer.....	Km

## Measures of Surface (Not Land)

100 square millimeters (mm <sup>2</sup> ).....	= 1 square centimeter.....	cm <sup>2</sup>
100 square centimeters.....	= 1 square decimeter.....	dm <sup>2</sup>
100 square decimeters.....	= 1 square meter.....	m <sup>2</sup>

## Measures of Volume

1,000 cubic millimeters (mm <sup>3</sup> ).....	= 1 cubic centimeter.....	cm <sup>3</sup>
1,000 cubic centimeters.....	= 1 cubic decimeter.....	dm <sup>3</sup>
1,000 cubic decimeters.....	= 1 cubic meter.....	m <sup>3</sup>

## Measures of Capacity

10 milliliters (ml).....	= 1 centiliter.....	cl
10 centiliters.....	= 1 deciliter.....	dl
10 deciliters.....	= 1 liter.....	l
10 liters.....	= 1 dekaliter.....	Dl
10 dekaliters.....	= 1 hektoliter.....	Hl
10 hektoliters.....	= 1 kiloliter.....	Kl

NOTE—The liter is equal to the volume occupied by 1 cubic decimeter.

## Measures of Weight

10 milligrams (mg).....	= 1 centigram.....	cg
10 centigrams.....	= 1 decigram.....	dg
10 decigrams.....	= 1 gram.....	g
10 grams.....	= 1 dekagram.....	Dg
10 dekagrams.....	= 1 hektogram.....	Hg
10 hektograms.....	= 1 kilogram.....	Kg
1,000 kilograms.....	= 1 ton.....	T

NOTE—The gram is the weight of one cubic centimeter of pure distilled water at a temperature of 39.2° F.; the kilogram is the weight of 1 liter of water; the ton is the weight of 1 cubic meter of water.

# Metric and English or American (U. S.) Equivalent Measures

## Measures of Length

1 meter = {	39.37 inches. 3.28083 feet. 1.0936 yards.	1 foot =	.3048 meter.
1 centimeter =	.3937 inch.	1 inch = {	2.54 centimeters. 25.4 millimeters.
1 millimeter =	.03937 inch, or 1.25 inch nearly.		
1 kilometer =	0.62137 mile.		

## Measures of Surface

1 square meter = {	10.764 square feet. 1.196 square yards.	1 square yard =	.836 square meter.
1 square centimeter =	.155 square inch.	1 square foot =	.0929 square meter.
1 square millimeter =	.00155 square inch.	1 square inch = {	6.452 square centimeters. 645.2 square millimeters.

## Measures of Volume and Capacity

1 cubic meter = {	35.314 cubic feet. 1.308 cubic yards. 264.2 gallons (231 cubic inch.)	1 cubic yard =	.7645 cubic meter.
1 cubic decimeter = {	61.023 cubic inch. .0353 cubic feet.	1 cubic foot = {	.02832 cubic meters. 28.317 cubic decimeters. 28.317 liters.
1 cubic centimeter =	.061 cubic inch.	1 cubic inch =	16.387 cubic centimeters.
1 liter = {	1 cubic decimeter. 61.023 cubic inches. .0353 cubic foot. 1.0567 quarts (U. S.) .2642 gallons (U. S.) 2.202 lbs. of water at 62° F.	1 gallon (British) =	4.543 liters.
		1 gallon (U. S.) =	3.785 liters.

## Measures of Weight

1 gram =	15.432 grains.	1 grain =	.0648 gram.
1 kilogram =	2.2046 pounds.	1 ounce avoirdupois =	28.35 grams.
1 metric ton = {	.9842 ton of 2,240 lbs. 19.68 cwts. 2204.6 lbs.	1 pound =	.4536 kilograms.
		1 ton of 2,240 lbs. = {	1.016 metric tons 1016 kilograms.

## Miscellaneous

1 kilogram per meter =	.6720 pound per foot.
1 gram per square millimeter =	1.422 pounds per square inch.
1 kilogram per square meter =	0.2084 pound per square foot.
1 kilogram per cubic meter =	.0624 pound per cubic foot.
1 degree centigrade =	1.8 degrees Fahrenheit.
1 pound per foot =	1.488 kilograms per meter.
1 pound per square foot =	4.882 kilograms per square meter.
1 pound per cubic foot =	16.02 kilograms per cubic meter.
1 degree Fahrenheit =	.5556 degree centigrade.
1 Calorie (French Thermal Unit) =	3.968 B. T. U. (British Thermal Unit).
1 Horse Power = {	33,000 foot pounds per minute. 746 Watts.
1 Watt (Unit of Electrical Power) = {	.00134 Horse Power. 44.24 foot pounds per minute.
1 Kilowatt = {	1000 Watts. 1.34 Horse Power. 44240 foot pounds per minute.

# Table of Decimal Equivalents of a Pound

FRACTIONAL PARTS OF AN OUNCE																	
	0	$\frac{1}{16}$	$\frac{1}{8}$	$\frac{3}{16}$	$\frac{1}{4}$	$\frac{5}{16}$	$\frac{3}{8}$	$\frac{7}{16}$	$\frac{1}{2}$	$\frac{9}{16}$	$\frac{5}{8}$	$\frac{11}{16}$	$\frac{3}{4}$	$\frac{13}{16}$	$\frac{7}{8}$	$\frac{15}{16}$	
OUNCES	0	.00000	.00781	.01172	.01562	.01953	.02344	.02734	.03125	.03515	.03906	.04297	.04687	.05078	.05469	.05859	
	1	.0625	.0703	.0742	.0781	.0820	.0859	.0898	.0937	.0976	.1015	.1055	.1094	.1133	.1172	.1211	
	2	.1250	.1289	.1328	.1367	.1406	.1445	.1484	.1523	.1562	.1601	.1640	.1680	.1719	.1758	.1836	
	3	.1875	.1914	.1953	.1992	.2031	.2109	.2148	.2187	.2226	.2265	.2305	.2344	.2383	.2422	.2461	
	4	.2500	.2539	.2578	.2617	.2656	.2734	.2773	.2812	.2851	.2890	.2930	.2969	.3008	.3047	.3086	
	5	.3125	.3164	.3203	.3242	.3281	.3359	.3398	.3437	.3476	.3515	.3555	.3594	.3633	.3672	.3711	
	6	.3750	.3789	.3828	.3867	.3906	.3984	.4023	.4062	.4101	.4140	.4180	.4219	.4258	.4297	.4336	
	7	.4375	.4414	.4453	.4492	.4531	.4609	.4648	.4687	.4726	.4765	.4805	.4844	.4883	.4922	.4961	
	8	.5000	.5039	.5078	.5117	.5156	.5234	.5273	.5312	.5351	.5390	.5430	.5469	.5508	.5547	.5586	
	9	.5625	.5664	.5703	.5742	.5781	.5859	.5898	.5937	.5976	.6015	.6055	.6094	.6133	.6172	.6211	
	10	.6250	.6289	.6328	.6367	.6406	.6484	.6523	.6562	.6601	.6640	.6680	.6719	.6758	.6797	.6836	
	11	.6875	.6914	.6953	.6992	.7031	.7109	.7148	.7187	.7226	.7265	.7305	.7344	.7383	.7422	.7461	
	12	.7500	.7539	.7578	.7617	.7656	.7734	.7773	.7812	.7851	.7890	.7930	.7969	.8008	.8047	.8086	
	13	.8125	.8164	.8203	.8242	.8281	.8359	.8398	.8437	.8476	.8515	.8555	.8594	.8633	.8672	.8711	
	14	.8750	.8789	.8828	.8867	.8906	.8984	.9023	.9062	.9101	.9140	.9180	.9219	.9258	.9297	.9336	
	15	.9375	.9414	.9453	.9492	.9531	.9609	.9648	.9687	.9726	.9765	.9805	.9844	.9883	.9922	.9961	

# Table of Decimal Equivalents of an Inch

1/64 .....	.0156	33/64 .....	.5156
1/32 .....	.0313	17/32 .....	.5313
3/64 .....	.0469	35/64 .....	.5469
1/16 .....	.0625	9/16 .....	.5625
5/64 .....	.0781	37/64 .....	.5781
3/32 .....	.0938	19/32 .....	.5938
7/64 .....	.1094	39/64 .....	.6094
1/8 .....	.1250	5/8 .....	.6250
9/64 .....	.1406	41/64 .....	.6406
5/32 .....	.1563	21/32 .....	.6563
11/64 .....	.1719	43/64 .....	.6719
3/16 .....	.1875	11/16 .....	.6875
13/64 .....	.2031	45/64 .....	.7031
7/32 .....	.2188	23/32 .....	.7188
15/64 .....	.2344	47/64 .....	.7344
1/4 .....	.2500	3/4 .....	.7500
17/64 .....	.2656	49/64 .....	.7656
9/32 .....	.2813	25/32 .....	.7813
19/64 .....	.2969	51/64 .....	.7969
5/16 .....	.3125	13/16 .....	.8125
21/64 .....	.3281	53/64 .....	.8281
11/32 .....	.3438	27/32 .....	.8438
23/64 .....	.3594	55/64 .....	.8594
3/8 .....	.3750	7/8 .....	.8750
25/64 .....	.3906	57/64 .....	.8906
13/32 .....	.4063	29/32 .....	.9063
27/64 .....	.4219	59/64 .....	.9219
7/16 .....	.4375	15/16 .....	.9375
29/64 .....	.4531	61/64 .....	.9531
15/32 .....	.4688	31/32 .....	.9688
31/64 .....	.4844	63/64 .....	.9844
1/2 .....	.5000	1 in.....	1.0000

## Area of Circles

Diam-eter	Area	Diam-eter	Area	Diam-eter	Area	Diam-eter	Area
$\frac{1}{8}$	0.0123	10	78.54	30	706.86	65	3,318.3
$\frac{1}{4}$	0.0491	$10\frac{1}{2}$	86.59	31	754.76	66	3,421.2
$\frac{3}{8}$	0.1104	11	95.03	32	804.24	67	3,525.6
$\frac{1}{2}$	0.1963	$11\frac{1}{2}$	103.86	33	855.30	68	3,631.6
$\frac{5}{8}$	0.3068	12	113.09	34	907.92	69	3,739.2
$\frac{3}{4}$	0.4418	$12\frac{1}{2}$	122.71	35	962.11	70	3,848.4
$\frac{7}{8}$	0.6013	13	132.73	36	1,017.8	71	3,959.2
1	0.7854	$13\frac{1}{2}$	143.13	37	1,075.2	72	4,071.5
$1\frac{1}{8}$	0.9940	14	153.93	38	1,134.1	73	4,185.4
$1\frac{1}{4}$	1.227	$14\frac{1}{2}$	165.13	39	1,194.5	74	4,300.8
$1\frac{3}{8}$	1.484	15	176.71	40	1,256.6	75	4,417.8
$1\frac{1}{2}$	1.767	$15\frac{1}{2}$	188.69	41	1,320.2	76	4,536.4
$1\frac{5}{8}$	2.073	16	201.06	42	1,385.4	77	4,656.6
$1\frac{3}{4}$	2.405	$16\frac{1}{2}$	213.82	43	1,452.2	78	4,778.3
$1\frac{7}{8}$	2.761	17	226.98	44	1,520.5	79	4,901.6
2	3.141	$17\frac{1}{2}$	240.52	45	1,590.4	80	5,026.5
$2\frac{1}{4}$	3.976	18	254.46	46	1,661.9	81	5,153.0
$2\frac{1}{2}$	4.908	$18\frac{1}{2}$	268.80	47	1,734.9	82	5,281.0
$2\frac{3}{4}$	5.939	19	283.52	48	1,809.5	83	5,410.6
3	7.068	$19\frac{1}{2}$	298.64	49	1,885.7	84	5,541.7
$3\frac{1}{4}$	8.295	20	314.16	50	1,963.5	85	5,674.5
$3\frac{1}{2}$	9.621	$20\frac{1}{2}$	330.06	51	2,042.8	86	5,808.8
$3\frac{3}{4}$	11.044	21	346.36	52	2,123.7	87	5,944.6
4	12.566	$21\frac{1}{2}$	363.05	53	2,206.1	88	6,082.1
$4\frac{1}{2}$	15.904	22	380.13	54	2,290.2	89	6,221.1
5	19.635	$22\frac{1}{2}$	397.60	55	2,375.8	90	6,361.7
$5\frac{1}{2}$	23.758	23	415.47	56	2,463.0	91	6,503.9
6	28.274	$23\frac{1}{2}$	433.73	57	2,551.7	92	6,647.6
$6\frac{1}{2}$	33.183	24	452.39	58	2,642.0	93	6,792.9
7	38.484	$24\frac{1}{2}$	471.43	59	2,733.9	94	6,939.8
$7\frac{1}{2}$	44.178	25	490.87	60	2,827.4	95	7,088.2
8	50.265	26	530.93	61	2,922.4	96	7,238.2
$8\frac{1}{2}$	56.745	27	572.55	62	3,019.0	97	7,389.8
9	63.617	28	615.75	63	3,117.2	98	7,542.9
$9\frac{1}{2}$	70.882	29	660.52	64	3,216.9	99	7,697.7

To compute the area of a diameter greater than any in the above table:

RULE—Divide the dimensions by 2, 3, 4, etc., if practicable, until it is reduced to a quotient to be found in the table, then multiply the tabular area of the quotient by the square of the factor. The product will be the area required.

EXAMPLE—What is area of diameter of 150?  $150 \div 5 = 30$ . Tabular area of 30 = 706.86 which  $\times 25 = 17,671.5$ , area required.



# Circumference of Circles

Diam-eter	Circumfer-ence	Diam-eter	Circumfer-ence	Diam-eter	Circumfer-ence	Diam-eter	Circumfer-ence
$\frac{1}{8}$	.3927	10	31.41	30	94.24	65	204.2
$\frac{1}{4}$	.7854	$10\frac{1}{2}$	32.98	31	97.38	66	207.3
$\frac{3}{8}$	1.178	11	34.55	32	100.5	67	210.4
$\frac{1}{2}$	1.570	$11\frac{1}{2}$	36.12	33	103.6	68	213.6
$\frac{5}{8}$	1.963	12	37.69	34	106.8	69	216.7
$\frac{3}{4}$	2.356	$12\frac{1}{2}$	39.27	35	109.9	70	219.9
$\frac{7}{8}$	2.748	13	40.84	36	113.0	71	223.0
1	3.141	$13\frac{1}{2}$	42.41	37	116.2	72	226.1
$1\frac{1}{8}$	3.534	14	43.98	38	119.3	73	229.3
$1\frac{1}{4}$	3.927	$14\frac{1}{2}$	45.55	39	122.5	74	232.4
$1\frac{3}{8}$	4.319	15	47.12	40	125.6	75	235.6
$1\frac{1}{2}$	4.712	$15\frac{1}{2}$	48.69	41	128.8	76	238.7
$1\frac{5}{8}$	5.105	16	50.26	42	131.9	77	241.9
$1\frac{3}{4}$	5.497	$16\frac{1}{2}$	51.83	43	135.0	78	245.0
$1\frac{7}{8}$	5.890	17	53.40	44	138.2	79	248.1
2	6.283	$17\frac{1}{2}$	54.97	45	141.3	80	251.3
$2\frac{1}{4}$	7.068	18	56.54	46	144.5	81	254.4
$2\frac{1}{2}$	7.854	$18\frac{1}{2}$	58.11	47	147.6	82	257.6
$2\frac{3}{4}$	8.639	19	59.69	48	150.7	83	260.7
3	9.424	$19\frac{1}{2}$	61.26	49	153.9	84	263.8
$3\frac{1}{4}$	10.21	20	62.83	50	157.0	85	267.0
$3\frac{1}{2}$	10.99	$20\frac{1}{2}$	64.40	51	160.2	86	270.1
$3\frac{3}{4}$	11.78	21	65.97	52	163.3	87	273.3
4	12.56	$21\frac{1}{2}$	67.54	53	166.5	88	276.4
$4\frac{1}{2}$	14.13	22	69.11	54	169.6	89	279.6
5	15.70	$22\frac{1}{2}$	70.68	55	172.7	90	282.7
$5\frac{1}{2}$	17.27	23	72.25	56	175.9	91	285.8
6	18.84	$23\frac{1}{2}$	73.82	57	179.0	92	289.0
$6\frac{1}{2}$	20.42	24	75.39	58	182.2	93	292.1
7	21.99	$24\frac{1}{2}$	76.96	59	185.3	94	295.3
$7\frac{1}{2}$	23.56	25	78.54	60	188.4	95	298.4
8	25.13	26	81.68	61	191.6	96	301.5
$8\frac{1}{2}$	26.70	27	84.82	62	194.7	97	304.7
9	28.27	28	87.96	63	197.9	98	307.8
$9\frac{1}{2}$	29.84	29	91.10	64	201.0	99	311.0

To compute the circumference of a diameter greater than any in the above table:

RULE—Divide the dimension by 2, 3, 4, etc., if practicable, until it is reduced to a diameter to be found in table. Take the tabular circumference of this diameter, multiply it by 2, 3, 4, etc., according as it was divided, and the product will be the circumference required.

EXAMPLE—What is the circumference of a diameter of 125?  $125 \div 5 = 25$ . Tabular circumference of 25 = 78.54;  $78.54 \times 5 = 392.7$ , circumference required.

## Strength of Wrought Iron Bolts

Diameter of Bolt in Inches	Number of Threads	Diameter at Bottom of Thread	Area at Bottom of Thread Square Inches	STRESS UPON BOLT UPON BASIS OF					
				3,000 Lbs. per Sq. In.	4,000 Lbs. per Sq. In.	5,000 Lbs. per Sq. In.	7,000 Lbs. per Sq. In.	10,000 Lbs. per Sq. In.	Probable Breaking Load
				Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.
$\frac{1}{2}$	13	.38	.12	350	460	580	810	1,160	5,800
$\frac{3}{8}$	12	.44	.15	450	600	750	1,050	1,500	7,500
$\frac{5}{8}$	11	.49	.19	560	750	930	1,310	1,870	9,000
$\frac{3}{4}$	10	.60	.28	850	1,130	1,410	1,980	2,830	14,000
$\frac{7}{8}$	9	.71	.39	1,180	1,570	1,970	2,760	3,940	19,000
1	8	.81	.52	1,550	2,070	2,600	3,630	5,180	25,000
$1\frac{1}{8}$	7	.91	.65	1,950	2,600	3,250	4,560	6,510	30,000
$1\frac{1}{4}$	7	1.04	.84	2,520	3,360	4,200	5,900	8,410	39,000
$1\frac{3}{8}$	6	1.12	1.00	3,000	4,000	5,000	7,000	10,000	46,000
$1\frac{1}{2}$	6	1.25	1.23	3,680	4,910	6,140	8,600	12,280	56,000
$1\frac{5}{8}$	$5\frac{1}{2}$	1.35	1.44	4,300	5,740	7,180	10,000	14,360	65,000
$1\frac{3}{4}$	5	1.45	1.65	4,950	6,600	8,250	11,560	16,510	74,000
$1\frac{7}{8}$	5	1.57	1.95	5,840	7,800	9,800	13,640	19,500	85,000
2	$4\frac{1}{2}$	1.66	2.18	6,540	8,720	10,900	15,260	21,800	95,000
$2\frac{1}{4}$	$4\frac{1}{2}$	1.92	2.88	8,650	11,530	14,400	20,180	28,800	125,000
$2\frac{1}{2}$	4	2.12	3.55	10,640	14,200	17,730	24,830	35,500	150,000
$2\frac{3}{4}$	4	2.37	4.43	13,290	17,720	22,150	31,000	44,300	186,000
3	$3\frac{1}{2}$	2.57	5.20	15,580	20,770	26,000	36,360	52,000	213,000
$3\frac{1}{2}$	$3\frac{1}{4}$	3.04	7.25	21,760	29,000	36,260	50,760	72,500	290,000
4	3	3.50	9.62	28,860	38,500	48,100	67,350	96,200	385,000

Copied from "Kent."

# Classification

## Standard Goods

	PAGE
XL Brass Globe and Angle Valves	30-33
No. 1 Brass Globe and Angle Valves	34, 35
No. 2 Brass Globe and Angle Valves	34, 36
Radiator Valves . . . . .	37-42
Radiator Elbow Unions . . . . .	43
Iron Body Globe and Angle Valves	55-57
Brass Gate Valves . . . . .	68, 88, 89
Iron Body Gate Valves . . . . .	90-98
Brass Check Valves . . . . .	106
Companion Flanges . . . . .	150

## Renewable Goods

Brass Globe and Angle Valves . .	2-9
Brass Radiator Valves . . . . .	10-15
Iron Body Globe, Angle and Cross Valves . . . . .	46-54, 58
Brass Gate Valves . . . . .	64-67
Iron Body Gate Valves . . . . .	72-81
Brass Straightway Check Valves .	100-105
Iron Straightway Check Valves .	108, 109

## Heavy Pressure Goods

Brass Globe and Angle Valves . .	8
Regrinding Globe, Angle and Cross Valves . . . . .	22-25, 28
Iron Body Globe and Angle Valves	50-52
Brass Gate Valves . . . . .	69, 71
Iron Body Gate Valves . . . . .	76, 77
Straightway Brass Check Valves .	104
Regrinding Brass Check Valves . .	107

## Extra Heavy Goods

	PAGE
Regrinding Brass Globe, Angle and Cross Valves . . . . .	26-28
Iron Body Globe and Angle Valves . . . . .	50, 51, 53
Brass Gate Valves . . . . .	70, 71
Iron Body Gate Valves . . . . .	78-80
Straightway Brass Check Valves .	105
Regrinding Brass Check Valves . .	107
Straightway Iron Check Valves . .	110
Companion Flanges . . . . .	151

## Specialties

Radiator Union Elbows . . . . .	43
Automatic Stop Check Valves . .	60, 61
Back Pressure Valves . . . . .	62
Steel Valves for Superheat . . .	82-85
"Special" Iron Body Check Valves . . . . .	112-114
Asbestos Packed Cocks . . . . .	116-127
SpherO Ball Valves . . . . .	128-135
Dart Unions and Flanges . . . .	137-140
Floor Stands . . . . .	142-145
Gearing . . . . .	146-148
Indicator Posts . . . . .	149
Valve Seating Tools . . . . .	152, 153
Schedules and Tables of General Information . . . . .	154-188

# General Index

## A

	PAGE
Adaptation of Gearing . . . . .	144-148
Air Pump Unions, Dart Patent . . . . .	140
Alphabetical Index to Code Words . . . . .	196-203
Angle Check Valves, Brass . . . . .	102, 103
Angle Valves, Brass, Vulcabeston Ring Disc . . . . .	6, 7
Angle Valves, Brass, Vulcabeston Ring Disc, Union End, Radiator . . . . .	10, 11
Angle Valves, Brass, Vulcabeston Ring Disc, Union End, Corner Offset . . . . .	12, 13, 15
Angle Valves, Brass, Vulcabeston Ring Disc, Screw End, Corner Offset . . . . .	12, 13, 15
Angle Valves, Brass, XL Standard . . . . .	30, 31
Angle Valves, Brass, No. 1 Standard . . . . .	34, 35
Angle Valves, Brass, No. 2 Standard . . . . .	34, 36
Angle Valves, Brass, XL Standard Radiator, Union End . . . . .	37-40
Angle Valves, Brass, XL Standard Hot Water Radiator, Union End . . . . .	41, 42
Angle Valves, Brass, XL Standard, Leather Disc . . . . .	32, 33
Angle Valves, Brass, Heavy, Renewable . . . . .	8, 9
Angle Valves, Brass, Heavy, Regrinding . . . . .	24, 25
Angle Valves, Brass, Extra Heavy, Regrinding . . . . .	26, 27
Angle Valves, Iron Body, Brass Hub . . . . .	55, 56
Angle Valves, Iron Body, Yoke Pattern, Renewable . . . . .	46-49
Angle Valves, Iron Body, Yoke Pattern, Heavy . . . . .	52
Angle Valves, Iron Body, Yoke Pattern, Extra Heavy . . . . .	53
Asbestos Cock Top Rings . . . . .	126
Asbestos Filled Discs for Brass Globe and Angle Valves . . . . .	5, 17
Asbestos Filled Discs for Iron Globe and Angle Valves . . . . .	54
Asbestos Packed Cocks . . . . .	116-127
Asbestos Packed Cocks, Parts . . . . .	117

## B

Back Pressure Valves, Iron Body . . . . .	62
Ball Valves . . . . .	128-135
Brass Angle Valves, Vulcabeston Ring Disc . . . . .	6, 7
Brass Angle Valves, Vulcabeston Ring Disc, Union End, Radiator . . . . .	10, 11
Brass Angle Valves, Vulcabeston Ring Disc, Union End, Corner Offset . . . . .	12, 13, 15
Brass Angle Valves, Vulcabeston Ring Disc, Screw End, Corner Offset . . . . .	12, 13, 15
Brass Angle Valves, XL Standard . . . . .	30, 31
Brass Angle Valves, No. 1 Standard . . . . .	34, 35
Brass Angle Valves, No. 2 Standard . . . . .	34, 36
Brass Angle Valves, XL Standard Radiator, Union End . . . . .	37-40
Brass Angle Valves, XL Standard Hot Water Radiator, Union End . . . . .	41, 42
Brass Angle Valves, XL Standard, Leather Disc . . . . .	32, 33
Brass Angle Valves, Heavy, Renewable . . . . .	8, 9
Brass Angle Valves, Heavy, Regrinding . . . . .	24, 25
Brass Angle Valves, Extra Heavy, Regrinding . . . . .	26, 27
Brass Check Valves . . . . .	100-107
Brass Check Valves, Parts . . . . .	101
Brass Check Valves, Angle . . . . .	102, 103
Brass Check Valves, Heavy . . . . .	104, 107
Brass Check Valves, Extra Heavy . . . . .	105, 107
Brass Check Valves, Standard . . . . .	106
Brass Check Valves, Regrinding . . . . .	107
Brass Corner Valves, Radiator, also Union End, Vulcabeston Ring Disc . . . . .	12, 13, 15
Brass Cocks, Asbestos Packed . . . . .	118, 127
Brass Cross Valves, Regrinding . . . . .	28
Brass Gate Valves . . . . .	68
Brass Gate Valves, Heavy . . . . .	69, 71
Brass Gate Valves, Extra Heavy . . . . .	70, 71
Brass Gate Valves, Renewable . . . . .	64-67

	PAGE
Brass Gate Valves, XL Standard . . . . .	88, 89
Brass Globe Valves, Vulcabeston Ring Disc . . . . .	6, 7
Brass Globe Valves, Vulcabeston Ring Disc, Radiator, also Union End . . . . .	10, 11
Brass Globe Valves, Vulcabeston Ring Disc, Offset Type, Union End . . . . .	14, 15
Brass Globe Valves, Vulcabeston Ring Disc, Offset Type, Screw End . . . . .	14, 15
Brass Globe Valves, XL Standard Radiator, Offset Type, Union End . . . . .	40
Brass Globe Valves, Heavy, Regrinding . . . . .	24, 25
Brass Globe Valves, Extra Heavy, Regrinding . . . . .	26, 27
Brass Globe Valves, Renewable, Heavy . . . . .	8, 9
Brass Globe Valves, No. 1 Standard . . . . .	34, 35
Brass Globe Valves, No. 2 Standard . . . . .	34, 36
Brass Globe Valves, XL Standard, Leather Disc . . . . .	32, 33
Brass Globe Valves, XL Standard . . . . .	30, 31
Brass Hose Cap and Chain . . . . .	18
Brass Lock Shield . . . . .	19
Brass Tee Handle . . . . .	19
Brass Tee Handle Key . . . . .	19
Brass Wheel . . . . .	18
Brass Disc for Globe and Angle Valves . . . . .	17
Brass Discs for Check Valves . . . . .	111
Brass Gate Valve Parts . . . . .	65
Brass Union Elbows . . . . .	43
Briggs' Standard Gauge . . . . .	155
British Standard Flanges . . . . .	168, 169
British Standard Threads . . . . .	155, 166, 167
By-pass for Iron Body Gate Valves . . . . .	79, 80

## C

Cap and Chain for Hose Valves . . . . .	18
Check Valves, Automatic Non-return Stop . . . . .	60, 61
Check Valves, Brass, Standard . . . . .	106
Check Valves, Brass, Regrinding . . . . .	107
Check Valves, Brass, Parts . . . . .	101
Check Valves, Brass, Angle . . . . .	102, 103
Check Valves, Brass, Heavy . . . . .	104, 107
Check Valves, Brass, Extra Heavy . . . . .	105, 107
Check Valve Discs . . . . .	111
Check Valves, Iron Body . . . . .	108-111
Check Valves, Iron Body, Extra Heavy . . . . .	110
Check Valves, Iron Body, "Special" . . . . .	112, 113
Cocks, Asbestos Packed, Parts . . . . .	117
Cocks, Asbestos Packed, Brass . . . . .	118, 127
Cocks, Asbestos Packed, Iron . . . . .	119-127
Cocks, Asbestos Packed, Iron, Heavy . . . . .	120, 127
Cocks, Asbestos Packed, Iron, Extra Heavy . . . . .	121, 127
Cocks, Asbestos Packed, Iron, Worm and Gear . . . . .	122, 123
Cocks, Asbestos Packed, Iron, Locomotive Pattern . . . . .	124, 125
Cocks, Wrench . . . . .	126
Cocks, Top Rings, Asbestos . . . . .	126
Code Index to Figure Numbers . . . . .	202, 203
Code Words, Index to . . . . .	196-203
Companion Flanges, Standard and Extra Heavy . . . . .	150, 151
Corner Radiator Valves, Brass, Vulcabeston Ring Disc . . . . .	12, 13, 15
Corner Radiator Valves, Brass, XL Standard . . . . .	39
Cross Valves, Brass, Regrinding . . . . .	28
Cross Valves, Iron Body, Brass Hub . . . . .	55, 57
Cross Valves, Iron Body, Yoke Pattern . . . . .	58

## D

Dart Unions . . . . .	137-140
Discs for Iron Body Check Valves . . . . .	111
Discs for Brass Globe Valves . . . . .	5, 17
Disk Holder, Special, for Brass Globe Valves . . . . .	5

	PAGE
Discs for Iron Globe Valves . . . . .	54
Drilling Flanges, Price List for . . . . .	154
Drilling Flanges, Table of . . . . .	156, 157
Double Disc Valves for Water . . . . .	95, 96

## E

Elbows, Union, Dart Patent . . . . .	139
Extra Heavy Angle Valves, Brass, Regrinding . . . . .	26, 27
Extra Heavy Angle Valves, Iron Body . . . . .	53
Extra Heavy Angle Valves, Automatic Non-return Stop Check . . . . .	60, 61
Extra Heavy Check Valves, Brass . . . . .	105-107
Extra Heavy Check Valves, Iron Body . . . . .	110
Extra Heavy Iron Cocks, Asbestos Packed . . . . .	121, 127
Extra Heavy Iron Cocks, Worm and Gear . . . . .	122, 123
Extra Heavy Companion Flanges . . . . .	151
Extra Heavy Gate Valves, Brass . . . . .	70, 71
Extra Heavy Gate Valves, Iron Body, Renewable . . . . .	78, 79
Extra Heavy Globe Valves, Brass, Regrinding . . . . .	26, 27
Extra Heavy Globe Valves, Iron Body . . . . .	53
Extra Heavy Gate Valves, for Superheated Steam . . . . .	82-85
Extra Heavy Steel Gate Valves . . . . .	84, 85

## F

Facing Tools for Valve Seats . . . . .	152, 153
Figure Numbers, Code Index to . . . . .	202, 203
Flanges, Companion . . . . .	150, 151
Flanges, Schedule of Standard . . . . .	156
Flanges, Schedule of Extra Heavy . . . . .	157
Flange Drilling, Price List of . . . . .	154
Flange Unions, Dart Patent . . . . .	138
Floor Stands, Stationary and Rising Spindle and Indicator . . . . .	142-145

## G

Gate Valves, Brass . . . . .	68
Gate Valves, Brass, Heavy . . . . .	69, 71
Gate Valves, Brass, Extra Heavy . . . . .	70, 71
Gate Valves, Brass, Renewable . . . . .	64-67
Gate Valves, Brass, XL Standard . . . . .	88, 89
Gate Valves, Iron Body, Renewable . . . . .	72-81
Gate Valves, Iron Body, Renewable, Heavy . . . . .	76, 77
Gate Valves, Iron Body, Renewable, Extra Heavy . . . . .	78, 79
Gate Valves, Iron Body, XL Standard . . . . .	90-98
Gate Valves, By-passes . . . . .	79, 80
Gate Valves, Seats, Iron Body . . . . .	81
Gate Valves, Steel . . . . .	84, 85
Gearing, Adaptation of . . . . .	144-148
Globe Valves, Brass, Vulcabeston Ring Disc . . . . .	6-9
Globe Valves, Brass, Vulcabeston Ring Disc, Radiator and Union End . . . . .	10, 11
Globe Valves, Brass, Vulcabeston Ring Disc, Offset Type, Union End . . . . .	14, 15
Globe Valves, Brass, Vulcabeston Ring Disc, Offset Type, Screw End . . . . .	14, 15
Globe Valves, Brass, XL Standard Radiator, Offset Type, Union End . . . . .	40
Globe Valves, Brass, Bronze Disc, Heavy, Renewable . . . . .	8, 9
Globe Valves, Brass, XL Standard . . . . .	30, 31
Globe Valves, Brass, XL Standard, Leather Disc . . . . .	32, 33
Globe Valves, Brass, No. 1 Standard . . . . .	34, 35
Globe Valves, Brass, No. 2 Standard . . . . .	34, 36
Globe Valves, Brass, Regrinding, Heavy . . . . .	24, 25
Globe Valves, Brass, Regrinding, Extra Heavy . . . . .	26, 27
Globe Valves, Iron Body, Brass Hub . . . . .	55, 56

	PAGE
Globe Valves, Iron Body, Renewable . . . . .	46-49
Globe Valves, Iron Body, Heavy . . . . .	50-52
Globe Valves, Iron Body, Extra Heavy . . . . .	50, 51, 53
Globe and Angle Non-return Stop and Check . . . . .	60, 61
Globe and Angle Parts, Price List of . . . . .	16
Globe By-pass for Gate Valves . . . . .	79, 80
Globe Discs for Brass Valves . . . . .	17
Globe Discs for Iron Valves . . . . .	54

## H

Handwheels, Brass and Wood . . . . .	18
Heavy Angle Valves, Brass, Renewable . . . . .	8, 9
Heavy Angle Valves, Brass, Regrinding . . . . .	24, 25
Heavy Angle Valves, Iron Body . . . . .	50-52
Heavy Check Valves, Brass . . . . .	104, 107
Heavy Cocks, Iron, Asbestos Packed . . . . .	120, 127
Heavy Cocks, Iron, Asbestos Packed, Worm and Gear . . . . .	122, 123
Heavy Gate Valves, Brass . . . . .	69, 71
Heavy Gate Valves, Iron Body, Renewable . . . . .	76, 77
Heavy Globe Valves, Brass, Renewable . . . . .	8, 9
Heavy Globe Valves, Brass, Regrinding . . . . .	24, 25
Heavy Globe Valves, Iron Body . . . . .	50-52
Holder, Disc, Special, for Brass Globe Valves . . . . .	5
Hose Cap and Chain . . . . .	18
Hot Water Radiator Valves . . . . .	41, 42

## I

Index, Classification . . . . .	189
Index to Code Words, Alphabetical . . . . .	196-203
Index to Figure Numbers, Code . . . . .	202, 203
Index, General . . . . .	190-195
Indicator Floor Stands . . . . .	142-145
Indicator Valve Posts . . . . .	149
Iron Body Angle Valves, Brass Hub . . . . .	55, 56
Iron Body Angle Valves, Renewable . . . . .	46-49
Iron Body Angle Valves, Heavy . . . . .	50-52
Iron Body Angle Valves, Extra Heavy . . . . .	50, 51, 53
Iron Body Ball Valves . . . . .	128-135
Iron Body Check Valves . . . . .	108-111
Iron Body Check Valves, Extra Heavy . . . . .	110
Iron Body Check Valves, "Special" . . . . .	112, 113
Iron Body Back Pressure Valves . . . . .	62
Iron Body Automatic Non-return Stop and Check . . . . .	60, 61
Iron Body Cross Valves, Brass Hub . . . . .	55, 57
Iron Body Cross Valves, Renewable . . . . .	58
Iron Body Gate Valves, Renewable . . . . .	74, 75
Iron Body Gate Valves, Heavy . . . . .	76, 77
Iron Body Gate Valves, Extra Heavy . . . . .	78, 79
Iron Body Gate Valves, XL Standard . . . . .	90-98
Iron Body Gate Valves, By-pass . . . . .	79, 80
Iron Body Globe Valves, Brass Hub . . . . .	55, 56
Iron Body Globe Valves, Renewable . . . . .	46-49
Iron Body Globe Valves, Heavy . . . . .	50-52
Iron Body Globe Valves, Extra Heavy . . . . .	50, 51, 53
Iron Cocks, Asbestos Packed . . . . .	116-127
Iron Cocks, Asbestos Packed, Heavy . . . . .	120, 127
Iron Cocks, Asbestos Packed, Extra Heavy . . . . .	121, 127
Iron Cocks, Asbestos Packed, Worm and Gear . . . . .	122, 123
Iron Cocks, Asbestos Packed, Locomotive Pattern . . . . .	124, 125
Iron Wrenches for Asbestos Packed Cocks . . . . .	126
Iron Wrenches for Removing Seat Rings . . . . .	81
Iron Wrenches for Indicator Posts . . . . .	149

---

---

<b>K</b>		<b>PAGE</b>
Keys for Lock Shields, Brass, Tee Handle . . . . .		19

<b>L</b>	
Leather Disc Globe Valves, Standard . . . . .	32, 33
Lever Handle Iron Body Gate Valves . . . . .	97, 98
Lock Shield for Brass Globe Valves . . . . .	19
Locomotive Pattern Iron Cocks, Asbestos Packed . . . . .	124, 125

<b>M</b>	
Male and Female Unions, Dart Patent . . . . .	139, 140

<b>N</b>	
National Standard Hose Thread . . . . .	155, 160
Non-return Stop and Check Valve, Iron Body . . . . .	60, 61

<b>O</b>	
Offset Globe Radiator Valves, Vulcabeston Ring Disc, Union End . . . . .	14, 15
Offset Globe Radiator Valves, Vulcabeston Ring Disc, Screw End . . . . .	14, 15
Offset Globe Radiator Valves, XL Standard, Union End . . . . .	40

<b>P</b>	
Parts of Brass Check Valves . . . . .	101
Parts of Asbestos Packed Cocks . . . . .	117
Parts of Brass Gate Valves, Renewable . . . . .	65
Parts of Brass Globe Valves, Vulcabeston Ring Disc . . . . .	4
Parts of Special Brass Disc Holder . . . . .	5
Price List of Parts of Brass Globe Valves, Vulcabeston Ring Disc . . . . .	16
Price List of Drilling End Flanges, Tongueing and Grooving . . . . .	154
Pump Unions, for Air, Dart Patent . . . . .	140

<b>Q</b>	
Quick Opening, XL Standard, Iron Body, Gate Valves . . . . .	97, 98

<b>R</b>	
Radiator Globe and Angle Valves, Vulcabeston Ring Disc . . . . .	10-15
Radiator Globe and Angle Valves, XL Standard . . . . .	37-42
Radiator Union Elbows . . . . .	43
Regrinding Brass Check Valves . . . . .	107
Regrinding Brass Cross Valves . . . . .	28
Regrinding Brass Globe and Angle Valves, Heavy . . . . .	24, 25
Regrinding Brass Globe and Angle Valves, Extra Heavy . . . . .	26, 27
Renewable Brass Globe Valves . . . . .	6-9
Renewable Brass Gate Valves . . . . .	64-67
Renewable Iron Body Gate Valves . . . . .	72-81
Renewable Iron Body Globe and Angle Valves . . . . .	46-49
Rising Spindle Gate Valves, Iron Body, Renewable . . . . .	74, 75
Rising Spindle Gate Valves, Iron Body, Heavy . . . . .	76, 77
Rising Spindle Gate Valves, Iron Body, Extra Heavy . . . . .	78, 79
Rising Spindle Gate Valves for Superheated Steam, Steel . . . . .	84, 85
Rising Spindle Gate Valves, Brass . . . . .	66, 67
Rising Spindle Floor Stands . . . . .	142-145

---

---



## S

	PAGE
Seat Rings for Renewable Gates . . . . .	81
Sectional View Asbestos Packed Cock . . . . .	116
Sectional Views Brass Check Valves . . . . .	100, 106, 107
Sectional View Brass Globe Valves, Vulcabeston Ring Disc . . . . .	2
Sectional View, Regrinding Globe Valve, Brass . . . . .	23
Sectional View, XL Standard Brass Globe Valve, Metal Disc . . . . .	30
Sectional View, XL Standard Brass Globe Valve, Leather Disc . . . . .	32
Sectional View, No. 1 and No. 2 Standard Brass Globe Valves . . . . .	34
Sectional View, XL Standard Steam Radiator Valve, Brass . . . . .	37
Sectional View, XL Standard Hot Water Radiator Valve, Brass . . . . .	41
Sectional View, Renewable Iron Body Globe Valve . . . . .	46
Sectional View, Heavy and Extra Heavy Iron Body Globe Valve . . . . .	50
Sectional View, Iron Body Globe Valve, Brass Hub . . . . .	55
Sectional View, Iron Body Non-return Stop and Check Valve . . . . .	60
Sectional View, Back Pressure Valve, Iron Body . . . . .	62
Sectional View, Renewable Brass-Gate Valve . . . . .	64
Sectional View, Renewable Iron Body Gate Valve . . . . .	73
Sectional View, Steel Superheated Gate Valve . . . . .	84
Sectional View, XL Standard Brass Gate Valve . . . . .	88
Sectional View, XL Standard Iron Body Gate Valve . . . . .	91
Sectional View, XL Standard Iron Body Gate Valve, Bell End . . . . .	95
Sectional View, Brass Check Valve, Straightway . . . . .	100
Sectional View, Brass Check Valve, Standard . . . . .	106
Sectional View, Brass Check Valve, Regrinding . . . . .	107
Sectional View, "Special" Check Valve, Iron Body . . . . .	112
Sectional View, Asbestos Packed Cock . . . . .	116
Sectional View, Ball Valve . . . . .	129
Sliding Stem and Lever, XL Iron Body Gate Valves . . . . .	97, 98
"Special" Iron Body Check Valves . . . . .	112-114
Standard Brass Globe and Angle Valves, XL, Brass Disc . . . . .	30, 31
Standard Brass Globe and Angle Valves, XL, Leather Disc . . . . .	32, 33
Standard Brass Globe and Angle Valves, No. 1 . . . . .	34, 35
Standard Brass Globe and Angle Valves, No. 2 . . . . .	34, 36
Standard Brass, XL Radiator Valves, for Steam . . . . .	37-40
Standard Brass, XL Radiator Valves, for Hot Water . . . . .	41, 42
Standard Brass, XL Gate Valves . . . . .	89
Standard Brass, Check Valves . . . . .	106
Standard XL Iron Body Gate Valves . . . . .	90-98

## T

Tables and Useful Information . . . . .	159-188
Tee Unions, Dart Patent . . . . .	139, 140
Tee Handles, Brass . . . . .	19

## U

Unions, Dart Patent . . . . .	137-140
Union End Radiator Globe and Angle Valves, Brass, Vulcabeston Ring Disc . . . . .	10, 11
Union End Corner Valves, Brass . . . . .	12, 13, 15
Union End Globe Valves, Vulcabeston Ring Disc, Offset Type . . . . .	14, 15
Union End Radiator Valves, XL Standard Steam . . . . .	37-40
Union End Radiator Valves, XL Standard Hot Water . . . . .	41, 42
Union Elbows . . . . .	43

## V

Vertical Check Valves, Brass, Regrinding . . . . .	107
--	-----

## W

Wheels, Wood . . . . .	18
Wheels, Brass . . . . .	18
Water Valves, Iron Body, Bell Ends . . . . .	95

# Alphabetical

## Index to Code Words

### Sizes—Valves, Cocks, Etc.

Oakum . . . . .	$\frac{1}{8}$ Inch	Obsolete . . . . .	$4\frac{1}{2}$ Inch	Octave . . . . .	22 Inch
Oasis . . . . .	$\frac{1}{4}$ Inch	Obstacle . . . . .	5 Inch	Octoroon . . . . .	24 Inch
Obedient . . . . .	$\frac{3}{8}$ Inch	Obstinate . . . . .	6 Inch	Ocular . . . . .	26 Inch
Obelisk . . . . .	$\frac{1}{2}$ Inch	Obtrude . . . . .	7 Inch	Oddity . . . . .	28 Inch
Objective . . . . .	$\frac{3}{4}$ Inch	Obtuse . . . . .	8 Inch	Offend . . . . .	30 Inch
Obligate . . . . .	1 Inch	Obvious . . . . .	9 Inch	Offertory . . . . .	36 Inch
Oblique . . . . .	$1\frac{1}{4}$ Inch	Occult . . . . .	10 Inch	Oilier . . . . .	40 Inch
Obliterate . . . . .	$1\frac{1}{2}$ Inch	Occupant . . . . .	12 Inch	Oil . . . . .	42 Inch
Oblivion . . . . .	2 Inch	Occupy . . . . .	14 Inch	Ointment . . . . .	48 Inch
Oblong . . . . .	$2\frac{1}{2}$ Inch	Occur . . . . .	15 Inch	Oily . . . . .	54 Inch
Obnoxious . . . . .	3 Inch	Ocean . . . . .	16 Inch	Oleander . . . . .	60 Inch
Obscure . . . . .	$3\frac{1}{2}$ Inch	Ochre . . . . .	18 Inch	Omen . . . . .	72 Inch
Observe . . . . .	4 Inch	Octagon . . . . .	20 Inch		

### Letters

Pacer . . . . .	Have you written
Pacifier . . . . .	Have written
Packet . . . . .	Answer by mail
Paddle . . . . .	Answer by mail to-day
Pagan . . . . .	We answer by mail to-day
Page . . . . .	In answer to your letter of
Pageant . . . . .	Will write to-morrow
Pagoda . . . . .	Replied to your letter
Painful . . . . .	Answer by mail with full particulars
Paint . . . . .	Awaiting reply to our letter
Palace . . . . .	We have your letter of
Palate . . . . .	Have not received your letter

### Modifications

Palette . . . . .	With Iron Wheel
Paling . . . . .	With Wood Wheel
Pallid . . . . .	With Fancy Brass Wheel, Finished
Palmetto . . . . .	With Rough Brass Spoke Wheel
Paltry . . . . .	With Finished Brass Spoke Wheel
Panel . . . . .	With Male Union
Panorama . . . . .	With Female Union
Pantheon . . . . .	With Lock Shield
Panther . . . . .	With Square on Stem for Key
Papal . . . . .	With Square Nut on Spindle
Papoose . . . . .	Rough Body, Finished Trimmings
Parachute . . . . .	Rough Body, Plated Trimmings
Parade . . . . .	Rough Body, Nickel Plated (all over)
Paragon . . . . .	Finished all over
Paramount . . . . .	Finished all over and Nickel Plated
Parapet . . . . .	With Hose Cap and Chain
Parasol . . . . .	With Hose Cap, no Chain
Parchment . . . . .	With Vulcabeston Ring Disc
Parent . . . . .	With Brass Disc
Parish . . . . .	With Solid Brass Disc
Parliament . . . . .	With Leather Disc

## Modifications—Continued

Parody . . . . .	With Special Metal Disc
Parsley . . . . .	With Bronze Seat Rings
Particle . . . . .	With Special Metal Seat Rings
Partridge . . . . .	Cage Construction
Passive . . . . .	English Thread
Paste . . . . .	Right Hand Thread
Pastille . . . . .	Left Hand Thread
Pastoral . . . . .	Gauge required to cut Hose Thread by
Pasture . . . . .	Right Hand
Paternal . . . . .	Left Hand
Pathos . . . . .	Opened by turning to the right
Patriot . . . . .	Opened by turning to the left
Pavilion . . . . .	Screw Ends
Peach . . . . .	Flange Ends
Pearl . . . . .	One Screw End, One Flange End
Pectoral . . . . .	Screwed Inlet, Flanged Outlet
Peddle . . . . .	Flanged Inlet, Screwed Outlet
Pedestal . . . . .	Bell Ends
Pedigree . . . . .	Gland Ends
Peerage . . . . .	Spigot Ends
Peeress . . . . .	One End Spigot, One End Bell
Pelican . . . . .	Screw Inlet, Hose Outlet
Penance . . . . .	Flange Inlet, Hose Outlet
Pendulum . . . . .	Composition Hub, Screw Ends
Peninsula . . . . .	Composition Hub, Flange Ends
Penman . . . . .	Yoke, Screw Ends
Pension . . . . .	Yoke, Flange Ends
Pensive . . . . .	Bolted Bonnet
Peony . . . . .	Quick Opening, Lever Handle
Pepper . . . . .	Stationary Spindle
Perch . . . . .	Rising Spindle
Percussion . . . . .	With Sliding Stem and Lever
Perform . . . . .	With Indicator
Peril . . . . .	With Quarter Stop
Perplex . . . . .	Without Quarter Stop
Persuade . . . . .	Regular Weight
Pervert . . . . .	Heavy Weight
Pestle . . . . .	Extra Heavy Weight
Petition . . . . .	Hydraulic Test Pressure
Petrify . . . . .	Hydraulic Working Pressure
Petulant . . . . .	Steam Working Pressure
Phalanx . . . . .	Number of Pounds Back Pressure
Phonetic . . . . .	Air Test Pressure
Phosphate . . . . .	Air Working Pressure
Piano . . . . .	With Steel Spindle
Pianist . . . . .	With Bronze Spindle
Piazza . . . . .	With Gate By-pass
Pickernel . . . . .	With Globe By-pass
Pickle . . . . .	With Gear
Pigeon . . . . .	With Spur Gear
Pigment . . . . .	With Bevel Gear
Pigmy . . . . .	Iron Body, Brass Mounted
Pike . . . . .	All Iron
Pilgrim . . . . .	With Worm and Gear
Pillage . . . . .	Distance End to End
Pilot . . . . .	Distance Face to Face
Pinafore . . . . .	Distance Center to End
Pioneer . . . . .	Distance Center to Face
Pippin . . . . .	Diameter of Flanges
Pirate . . . . .	Both Valve Flanges Tongued
Pitcher . . . . .	With Valve Flanges Grooved
Pittance . . . . .	Valve Flanges, One Tongued, One Grooved

---

---

## Modifications—Continued

Placard . . . . .	With Faced Companion Flanges Drilled and Bolted on
Plaque . . . . .	With Heavy Faced Companion Flanges Drilled and Bolted on
Planet . . . . .	With Extra Heavy Faced Companion Flanges Drilled and Bolted on
Plastic . . . . .	Faced, Drilled and Bolted on
Plateau . . . . .	Drilling off Center Line
Platoon . . . . .	Drilling on Center Line

## Patterns

Playmate . . . . .	Have you patterns
Plebian . . . . .	We have patterns
Pluck . . . . .	We have no patterns
Plume . . . . .	Will you make patterns
Plunder . . . . .	We will make patterns
Plunge . . . . .	We will not make patterns
Plush . . . . .	When can you complete patterns
Politic . . . . .	We can complete patterns in
Polish . . . . .	Patterns will cost
Police . . . . .	Send blue prints of

## Prices and Quotations

Polka . . . . .	Telegraph list price
Pollen . . . . .	Telegraph net price to us
Pomade . . . . .	Quote by mail lowest price
Pomp . . . . .	Quotation for immediate acceptance
Pommel . . . . .	We name you list prices
Ponder . . . . .	We quote you net prices
Poniard . . . . .	We will furnish material specified for
Pontiff . . . . .	To what price can we go
Pone . . . . .	Less freight to
Pony . . . . .	F.o.b. cars
Pontoon . . . . .	You can sell
Poplar . . . . .	Cannot sell any more at same price
Populous . . . . .	Mail best price and quickest delivery
Porch . . . . .	Telegraph best price and quickest delivery

## Shipments

Porous . . . . .	When can you ship
Porpoise . . . . .	Can you ship
Porridge . . . . .	Wire how soon you can ship
Portal . . . . .	We can ship
Portend . . . . .	We cannot ship
Porter . . . . .	We expect to ship on
Portico . . . . .	Have you shipped
Portiere . . . . .	Wire when shipment was or will be made
Portray . . . . .	We have not shipped
Postal . . . . .	We have shipped
Posterity . . . . .	We shipped on
Postillion . . . . .	We ship to-day
Postman . . . . .	Factory will ship
Postpone . . . . .	Factory expect to ship
Posture . . . . .	Can ship to-day
Potash . . . . .	Can ship to-morrow
Potato . . . . .	Can ship in three days
Potion . . . . .	Can ship in four days
Pouch . . . . .	Can ship in five days
Poultry . . . . .	Can ship in six days
Powder . . . . .	Can ship in one week
Prairie . . . . .	Can ship in ten days

## Shipments—Continued

Prance . . . . .	Can ship in two weeks
Prattle . . . . .	Can ship in three weeks
Preamble . . . . .	Can ship in one month
Precept . . . . .	Can ship immediately on receipt of order
Precious . . . . .	Ship all you possibly can
Precise . . . . .	Ship all you can, write how many
Predict . . . . .	Ship all you can, telegraph how many
Preface . . . . .	Send by mail
Prefix . . . . .	Ship by express
Prejudge . . . . .	Ship by express to-day
Prelate . . . . .	Ship by freight
Prejudice . . . . .	Ship by freight to-day
Prelude . . . . .	Ship by fast freight
Premier . . . . .	Ship by boat
Prescribe . . . . .	Ship by cheapest route
Preserve . . . . .	Ship part at once, remainder to follow
Press . . . . .	Do not ship
Presto . . . . .	When will you ship
Pretence . . . . .	We will ship
Pretend . . . . .	If you have not shipped
Pretender . . . . .	If you have not shipped when will you ship
Pretext . . . . .	You must ship quickly
Pretty . . . . .	We cannot promise definitely
Priest . . . . .	We have ready for shipment
Primary . . . . .	When were goods shipped
Prime . . . . .	When were goods shipped, order number
Primrose . . . . .	By what route were goods shipped
Princess . . . . .	By what route were goods shipped, order number
Principal . . . . .	Have not received shipment

## Stock and Orders

Print . . . . .	Have you in stock
Prior . . . . .	If not in stock how soon can factory ship
Prison . . . . .	If not in stock warehouse do not order factory, hold order
Privacy . . . . .	If not in stock from what point can you ship
Private . . . . .	If not in stock do not enter order
Prism . . . . .	We have in stock
Privateer . . . . .	We have none in stock
Prize . . . . .	Have no more in stock
Probate . . . . .	All we can spare
Probe . . . . .	If not in stock wire factory
Proclaim . . . . .	How many have you in stock
Proctor . . . . .	Enter order and ship soon as possible
Prodigal . . . . .	We have ordered from factory
Prodigy . . . . .	We have telegraphed order to factory
Profess . . . . .	We have no order
Produce . . . . .	We have your order of
Profile . . . . .	Cancel order
Profound . . . . .	We cannot cancel order
Program . . . . .	If not already executed, cancel
Prohibit . . . . .	We cannot cancel order, shipment has been made
Projectile . . . . .	We have cancelled order
Prolific . . . . .	Cancel balance of order
Prologue . . . . .	We have cancelled balance of order
Promenade . . . . .	Telegram instructing cancellation of order too late, order now being executed
Promote . . . . .	Please change our order to
Prone . . . . .	Have changed order
Proof . . . . .	Too late to change order
Propel . . . . .	In process of manufacture, cannot be changed without loss
Propend . . . . .	Can do nothing until we receive more definite information

## Telegrams

Proper . . . . .	We do not understand your telegram
Property . . . . .	Have telegram repeated
Prophetic . . . . .	Are awaiting reply to our telegram of
Prophecy . . . . .	Answer by telegraph
Prophet . . . . .	Telegraph reply as soon as possible
Propound . . . . .	Your telegram received
Propriety . . . . .	Replied to your telegram
Prosaic . . . . .	Your telegram not received in time
Prospect . . . . .	Have not received your telegram
Prose . . . . .	Your telegram of
Proscribe . . . . .	In answer to your telegram
Prosper . . . . .	Our telegram of
Prostrate . . . . .	Have you received our telegram of
Protector . . . . .	Telegraph us full particulars
Protest . . . . .	Telegraph in cipher
Protract . . . . .	Telegraph in plain language
Proud . . . . .	Have factory telegraph us
Proverb . . . . .	Have asked factory to telegraph you
Provident . . . . .	Have asked factory to write you
Province . . . . .	Have asked factory, upon receipt of reply will wire you
Provision . . . . .	Have asked factory, upon receipt of reply will write you
Provoke . . . . .	Office closed yesterday, holiday
Prowess . . . . .	Holiday here to-day
Proxy . . . . .	Holiday here to-morrow, office closed

## Tracers

Prudent . . . . .	Trace shipment
Prussian . . . . .	Trace shipment by wire
Psalm . . . . .	We have traced shipment
Public . . . . .	We will trace shipment
Pucker . . . . .	We will trace shipment by wire
Pugilist . . . . .	Trace goods shipped, order number
Pullet . . . . .	Trace by wire goods shipped, order number
Pulpit . . . . .	We have traced goods shipped, order number

## Discounts

Quack . . . . .	At what discount will you sell us
Quadrangle . . . . .	At what discount can we sell
Quadrant . . . . .	Name your lowest discount on
Quadratic . . . . .	We quote you discount
Quadrille . . . . .	Discount will be
Quadroon . . . . .	We cannot change present discount
Quadruple . . . . .	We hereby withdraw all present discounts
Quaff . . . . .	We hereby notify you of change in discounts to

Quaggy . . . . .	2½	Quash . . . . .	35	Quilt . . . . .	65-5
Quagmire . . . . .	5	Quassia . . . . .	35-5	Quince . . . . .	65-10
Quake . . . . .	7½	Quaver . . . . .	35-10	Quinine . . . . .	70
Quahog . . . . .	10	Quay . . . . .	40	Quinsy . . . . .	70-5
Quail . . . . .	10-5	Queen . . . . .	40-5	Quintal . . . . .	70-10
Quaint . . . . .	10-10	Queer . . . . .	40-10	Quire . . . . .	75
Quaker . . . . .	15	Quell . . . . .	45	Quirk . . . . .	75-5
Qualifier . . . . .	15-5	Quench . . . . .	45-5	Quitclaim . . . . .	75-10
Quality . . . . .	15-10	Querl . . . . .	45-10	Quite . . . . .	80
Qualm . . . . .	20	Query . . . . .	50	Quiver . . . . .	80-5
Quandary . . . . .	20-5	Quest . . . . .	50-5	Quixotic . . . . .	80-10
Quarantine . . . . .	20-10	Quibble . . . . .	55	Quizzing . . . . .	85
Quarrel . . . . .	25	Quicken . . . . .	55-5	Quoin . . . . .	85-5
Quarry . . . . .	25-5	Quicksand . . . . .	55-10	Quoit . . . . .	85-10
Quart . . . . .	25-10	Quiescent . . . . .	60	Quorum . . . . .	90
Quartet . . . . .	30	Quiet . . . . .	60-5	Quota . . . . .	90-5
Quarto . . . . .	30-5	Quietus . . . . .	60-10	Quoth . . . . .	90-10
Quartz . . . . .	30-10	Quill . . . . .	65	Quotient . . . . .	95

## Numbers, Quantities, Etc.

Rabbit . . . . .	1	Recruit . . . . .	46	Retort . . . . .	91
Rabid . . . . .	2	Rector . . . . .	47	Retrench . . . . .	92
Raccoon . . . . .	3	Redress . . . . .	48	Reveal . . . . .	93
Racket . . . . .	4	Reeky . . . . .	49	Revenge . . . . .	94
Radiance . . . . .	5	Referee . . . . .	50	Reverie . . . . .	95
Radical . . . . .	6	Reflex . . . . .	51	Revert . . . . .	96
Radish . . . . .	7	Refresh . . . . .	52	Revival . . . . .	97
Raffle . . . . .	8	Refugee . . . . .	53	Revolt . . . . .	98
Ragged . . . . .	9	Refute . . . . .	54	Revolve . . . . .	99
Raiment . . . . .	10	Regal . . . . .	55	Rhetoric . . . . .	100
Rainbow . . . . .	11	Regatta . . . . .	56	Rhyme . . . . .	125
Raisin . . . . .	12	Regent . . . . .	57	Ribbon . . . . .	150
Rally . . . . .	13	Regiment . . . . .	58	Rickets . . . . .	175
Ramble . . . . .	14	Rehearsal . . . . .	59	Riddle . . . . .	200
Rampant . . . . .	15	Reindeer . . . . .	60	Ridge . . . . .	225
Ranch . . . . .	16	Rejoice . . . . .	61	Rifle . . . . .	250
Random . . . . .	17	Relax . . . . .	62	Rigor . . . . .	275
Ransack . . . . .	18	Relent . . . . .	63	Ringlet . . . . .	300
Rapture . . . . .	19	Reliance . . . . .	64	Rinse . . . . .	325
Rarity . . . . .	20	Religion . . . . .	65	Ripple . . . . .	350
Raspberry . . . . .	21	Relish . . . . .	66	Ritual . . . . .	375
Ratify . . . . .	22	Remiss . . . . .	67	River . . . . .	400
Rational . . . . .	23	Remole . . . . .	68	Roast . . . . .	425
Rattan . . . . .	24	Removal . . . . .	69	Robber . . . . .	450
Rattle . . . . .	25	Rendezvous . . . . .	70	Robbin . . . . .	475
Ravage . . . . .	26	Renovate . . . . .	71	Rocket . . . . .	500
Ravel . . . . .	27	Repartee . . . . .	72	Roman . . . . .	600
Raven . . . . .	28	Repeal . . . . .	73	Rosary . . . . .	700
Ravine . . . . .	29	Repent . . . . .	74	Rosette . . . . .	800
Rawhide . . . . .	30	Repose . . . . .	75	Rostrum . . . . .	900
Razor . . . . .	31	Reptile . . . . .	76	Roulette . . . . .	1000
Realm . . . . .	32	Repudiate . . . . .	77	Rover . . . . .	1500
Rebel . . . . .	33	Requiem . . . . .	78	Rowdy . . . . .	2000
Rebuff . . . . .	34	Rescue . . . . .	79	Rowel . . . . .	2500
Rebus . . . . .	35	Resent . . . . .	80	Royalist . . . . .	3000
Recede . . . . .	36	Reside . . . . .	81	Rubbish . . . . .	3500
Recent . . . . .	37	Resident . . . . .	82	Rudder . . . . .	4000
Recess . . . . .	38	Resign . . . . .	83	Rude . . . . .	4500
Recipient . . . . .	39	Resin . . . . .	84	Ruddy . . . . .	5000
Recital . . . . .	40	Resolute . . . . .	85	Ruff . . . . .	6000
Recite . . . . .	41	Respect . . . . .	86	Rugg . . . . .	7000
Reckon . . . . .	42	Respite . . . . .	87	Ruin . . . . .	8000
Recline . . . . .	43	Restive . . . . .	88	Rule . . . . .	9000
Recoil . . . . .	44	Retard . . . . .	89	Rum . . . . .	10000
Recover . . . . .	45	Retina . . . . .	90		

---

---

## Code Index to Figure Numbers

Fig. No. 01—Vacancy  
Fig. No. 02—Vacant  
Fig. No. 03—Vacantly  
Fig. No. 04—Vacate  
Fig. No. 05—Vacation  
Fig. No. 06—Vachery  
Fig. No. 07—Vade  
Fig. No. 08—Vagabond  
Fig. No. 09—Vagary  
Fig. No. 010—Vagrancy  
Fig. No. 011—Vagrant  
Fig. No. 012—Vague  
Fig. No. 013—Vail  
Fig. No. 014—Vain  
Fig. No. 015—Vair  
Fig. No. 016—Valance  
Fig. No. 017—Valentine  
Fig. No. 018—Valerian  
Fig. No. 019—Valet  
Fig. No. 020—Valiant  
Fig. No. 021—Valise  
Fig. No. 022—Valor  
Fig. No. 023—Valorous  
Fig. No. 024—Vamp  
Fig. No. 025—Vampire  
Fig. No. 026—Vamplate  
Fig. No. 027—Van  
Fig. No. 028—Vandal  
Fig. No. 029—Vandyke  
Fig. No. 030—Vanish  
Fig. No. 031—Vanity  
Fig. No. 032—Vapid  
Fig. No. 033—Vapor  
Fig. No. 034—Vaporate  
Fig. No. 035—Vaporish  
Fig. No. 036—Vaporize  
Fig. No. 037—Vaporose  
Fig. No. 038—Vapory  
Fig. No. 039—Vaquero  
Fig. No. 040—Variable  
Fig. No. 041—Variance  
Fig. No. 042—Variant  
Fig. No. 043—Variform  
Fig. No. 044—Varlet  
Fig. No. 045—Varnish  
Fig. No. 046—Vase  
Fig. No. 047—Vassal  
Fig. No. 048—Vast  
Fig. No. 049—Vastly  
Fig. No. 050—Vat  
Fig. No. 051—Vatican  
Fig. No. 052—Vault  
Fig. No. 053—Vaulting

Fig. No. 054—Vaunt  
Fig. No. 0101—Veal  
Fig. No. 0102—Vector  
Fig. No. 0103—Veda  
Fig. No. 0104—Vedantic  
Fig. No. 0105—Vedette  
Fig. No. 0106—Vedic  
Fig. No. 0107—Veer  
Fig. No. 0108—Vega  
Fig. No. 0109—Vegetable  
Fig. No. 0110—Vegetal  
Fig. No. 0111—Vegetate  
Fig. No. 0112—Vegete  
Fig. No. 0113—Vehement  
Fig. No. 0114—Vehicle  
Fig. No. 0115—Vehicled  
Fig. No. 0116—Vehemic  
Fig. No. 0117—Veined  
Fig. No. 0118—Veinlet  
Fig. No. 0119—Veiny  
Fig. No. 0120—Velar  
Fig. No. 0121—Vellum  
Fig. No. 0122—Veloce  
Fig. No. 0123—Velocity  
Fig. No. 0124—Velours  
Fig. No. 0125—Velvet  
Fig. No. 0126—Velvety  
Fig. No. 0127—Vend  
Fig. No. 0128—Vendor  
Fig. No. 0129—Venerate  
Fig. No. 0201—Venerator  
Fig. No. 0202—Venetian  
Fig. No. 0203—Veneur  
Fig. No. 0204—Venus  
Fig. No. 0205—Veney  
Fig. No. 0206—Venge  
Fig. No. 0207—Vengeance  
Fig. No. 0208—Vengeful  
Fig. No. 0209—Veni  
Fig. No. 0301—Venial  
Fig. No. 0302—Venison  
Fig. No. 0303—Venom  
Fig. No. 0304—Venomed  
Fig. No. 0305—Vent  
Fig. No. 0306—Ventilate  
Fig. No. 0307—Venting  
Fig. No. 0308—Ventose  
Fig. No. 0309—Venue  
Fig. No. 0310—Venture  
Fig. No. 0311—Venus  
Fig. No. 0312—Veracity  
Fig. No. 0313—Veranda  
Fig. No. 0314—Verb



## Code Index to Figure Numbers—Continued

Fig. No. 0315—Verbal	Fig. No. 0821—Vexil
Fig. No. 0316—Verbatim	Fig. No. 0824—Vial
Fig. No. 0317—Verbena	Fig. No. 0828—Vicar
Fig. No. 0401—Verdancy	Fig. No. 0829—Vicarage
Fig. No. 0402—Verdant	Fig. No. 0830—Vicarship
Fig. No. 0403—Verdict	Fig. No. 0831—Viceroy
Fig. No. 0404—Verdigris	Fig. No. 0832—Viceroyal
Fig. No. 0405—Verdure	Fig. No. 0833—Vicinage
Fig. No. 0406—Verge	Fig. No. 0834—Vicinal
Fig. No. 0407—Verifier	Fig. No. 0835—Vicinalis
Fig. No. 0408—Verity	Fig. No. 0836—Vicinity
Fig. No. 0601—Vermes	Fig. No. 0837—Vicinitas
Fig. No. 0602—Vermuth	Fig. No. 0838—Vicinus
Fig. No. 0603—Vernal	Fig. No. 0839—Vicious
Fig. No. 0604—Vernation	Fig. No. 0840—Viciously
Fig. No. 0605—Veronica	Fig. No. 0841—Vicount
Fig. No. 0606—Versal	Fig. No. 01001—Victim
Fig. No. 0607—Versant	Fig. No. 01002—Victima
Fig. No. 0608—Versatile	Fig. No. 01003—Victor
Fig. No. 0609—Verse	Fig. No. 0322—Victory
Fig. No. 0610—Versed	Fig. No. 0323—Vietress
Fig. No. 0611—Vesser	Fig. No. 0324—Victual
Fig. No. 0612—Versicle	Fig. No. 0325—Vide
Fig. No. 0613—Versicolor	Fig. No. 0326—Vidual
Fig. No. 0701—Versify	Fig. No. 0327—Vie
Fig. No. 0702—Versifier	Fig. No. 0328—View
Fig. No. 0703—Version	Fig. No. 0329—Viewer
Fig. No. 0704—Versus	Fig. No. 0330—Vigil
Fig. No. 0705—Vert	Fig. No. 0331—Vigilance
Fig. No. 0706—Vertebra	Fig. No. 0332—Vigilant
Fig. No. 0707—Vertex	Fig. No. 0333—Vignette
Fig. No. 0708—Vervain	Fig. No. 0334—Vigor
Fig. No. 0709—Vervels	Fig. No. 0335—Viking
Fig. No. 0710—Vespers	Fig. No. 0338—Vilayet
Fig. No. 0801—Vespiary	Fig. No. 0339—Vilipend
Fig. No. 0802—Vessel	Fig. No. 0320—Villa
Fig. No. 0803—Vest	Fig. No. 0321—Villian
Fig. No. 0804—Vesta	Fig. No. 0340—Villiany
Fig. No. 0805—Vestal	Fig. No. 0343—Villanage
Fig. No. 0806—Vested	Fig. No. 0409—Villiform
Fig. No. 0807—Vestuary	Fig. No. 0410—Villose
Fig. No. 0808—Vestibule	Fig. No. 0411—Vim
Fig. No. 0809—Vestige	Fig. No. 01004—Vincible
Fig. No. 0810—Vestment	Fig. No. 01005—Vincture
Fig. No. 0811—Vestry	Fig. No. 01006—Vindicate
Fig. No. 0812—Vesture	Fig. No. 01007—Vinegar
Fig. No. 0813—Vetch	Fig. No. 01008—Vineyard
Fig. No. 0814—Vetchling	Fig. No. 01009—Vingtum
Fig. No. 0815—Vetchy	Fig. No. 01010—Vinic
Fig. No. 0816—Veteran	Fig. No. 03190—Viny
Fig. No. 0817—Veto	Fig. No. 03191—Viola
Fig. No. 0818—Vex	Fig. No. 03197—Violent
Fig. No. 0819—Vexation	Fig. No. 03202—Violet
Fig. No. 0820—Vexer	





DATE DUE

5/18/90

261-2500

Printed  
in USA

UX 001 310 790



